

1047
No. 2835

United States
Circuit Court of Appeals

For the Ninth Circuit

VINEYARD LAND & STOCK COMPANY, a Corporation,

Appellant,

VS.

TWIN FALLS SALMON RIVER LAND AND WATER COMPANY, a Corporation, and SALMON RIVER CANAL COMPANY, Limited, a Corporation,

Appellee.

Transcript of the Record

Filed

NOV 29 1916

F. D. Monckton,
Clerk.

*Upon Appeal from the United States District Court
for the District of Idaho, Southern Division.*

No.

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Corporation, Appellee.

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*In the District Court of the United States, for the
District of Idaho, Southern Division.*

TWIN FALLS SALMON RIVER LAND AND
WATER COMPANY, a Corporation, and SAL-
MON RIVER CANAL COMPANY, LIMITED,
a Corporation, Plaintiffs,

vs.

VINEYARD LAND AND STOCK COMPANY, a
Corporation, Defendant.

BILL IN EQUITY.

*To the Honorable, The Judge of the District Court
of the United States, for the District of
Idaho, Southern Division:*

The Twin Falls Salmon River Land and Water Company, a corporation, organized and existing under the laws of the State of Delaware, and a citizen of the said State of Delaware, and the Salmon River Canal Company, Limited, a corporation, organized and existing under the laws of the State of Idaho, and a citizen of said State of Idaho, bring this their Bill against the Vineyard Land and Stock Company, a corporation organized under the laws of the State of Utah and a citizen of said State of Utah, and thereupon your orators complain and say:

1.

That the Twin Falls Salmon River Land and Water Company is a corporation organized and at

all the times hereinafter mentioned was existing under the laws of the State of Delaware and a citizen of said State, and duly authorized and empowered to do business in the State of Idaho having complied with the laws thereof relative to foreign corporations.

That the Salmon River Canal Company, Limited, is a corporation organized and at all of the times hereinafter mentioned was existing under the laws of the State of Idaho and a citizen of said State.

2.

That the defendant, the Vineyard Land and Stock Company, is a corporation organized and at all of the times hereinafter mentioned was existing under the laws of the State of Utah, and at all of the times hereinafter mentioned and at the present time, a citizen of said State.

3.

That on or about the 12th day of August, 1907, I. B. Perrine, together with other persons, made an application to the State Board of Land Commissioners of the State of Idaho, under the provisions of Section 1615 of the Revised Codes of the State of Idaho, wherein and whereby said I. B. Perrine and his associates proposed to construct certain irrigation works in Twin Falls County, State of Idaho, for the purpose of irrigating approximately 127,000 acres of land, situated in Townships 11, 12, 13, and 14 South and Ranges 14, 15, 16 and 17 East of the Boise Meridian, in said Twin Falls County, State of Idaho,

said lands being arid in character and requiring irrigation in order to produce an agricultural crop;

That for the purpose of irrigating said land, said I. B. Perrine and his associates proposed to divert the waters of Salmon River in said Twin Falls County to the extent of 1500 cubic feet per second of time and said I. B. Perrine and his associates requested said State Board of Land Commissioners to procure the segregation of the lands hereinbefore mentioned and also to procure a contract to be entered into between the United States of America and the State of Idaho under the terms of what is commonly called the Carey Act wherein and whereby the said United States of America should promise and agree to convey to said State of Idaho the said lands hereinabove described when said State should have procured the building of the necessary works for the irrigation of said lands;

That said proposal and request was received and after a report by the State Engineer of the State of Idaho, was accepted by said State Board of Land Commissioners of said State of Idaho; that application was thereafter made for the segregation of said lands and on the 10th day of April, 1908, the United States of America entered into a contract with the State of Idaho wherein and whereby said United States of America promised and agreed to convey to said State of Idaho the aforesaid lands upon the State of Idaho securing the construction of the necessary irrigation works for the irrigation of said lands.

4.

That the Twin Falls Salmon River Land and Water Company, a corporation, one of the plaintiffs herein, was organized among other things, for the purpose of constructing irrigation works in the State of Idaho under contract with said State; that said I. B. Perrine and his associates, with the consent of the State Board of Land Commissioners of the State of Idaho, after making the proposal and request hereinbefore mentioned, conveyed to the plaintiff, the Twin Falls Salmon River Land and Water Company, a corporation, all of their rights and interests acquired under and by virtue of said proposal and request.

5.

That thereafter and on the 30th day of April, 1908, said Twin Falls Salmon River Land and Water Company, the plaintiff herein, made and entered into a contract with the State of Idaho, under the terms of what is commonly known as the Carey Act and the legislation of the State of Idaho supplemental thereto wherein and whereby said Twin Falls Salmon River Land and Water Company contracted and agreed with the said State of Idaho to build and construct certain irrigation works in Twin Falls County, State of Idaho, consisting of a dam, tunnels, canals and conduits for the irrigation of the lands hereinbefore mentioned, a copy of which contract omitting the description of the lands to be irrigated is filed herewith, hereby referred to, made a part hereof and marked Exhibit "A"; that it was provided by the

terms of said contract that a certain dam, tunnels and canals should be constructed as specified in said contract for the purpose of diverting 1500 cubic feet per second of the waters of Salmon River in said Twin Falls County, State of Idaho, for the irrigation of said lands;

That plaintiff herein, the Twin Falls Salmon River Land and Water Company, has completed the construction of the aforesaid dam, tunnels and canals as required and provided in said contract with the State of Idaho, dated April 30th, 1908, and marked Exhibit "A" herein, and that it is necessary to divert from said Salmon River at the point specified in said contract, to-wit, Section 18, Township 14 South, Range 15 East, Boise Meridian, in Twin Falls County, State of Idaho, the said amount of 1500 cubic feet per second of the waters of said Salmon River for the irrigation of the lands hereinbefore mentioned; that it was provided in said contract that a reservoir with a capacity of approximately 180,000 acre feet should be provided by the construction of a certain dam mentioned in said contract, Exhibit "A"; that said dam has been constructed and said reservoir provided.

That the highest flow in high water of said Salmon River is less than 1500 cubic feet per second of time and that it is necessary to gather and use the entire flow of said Salmon River for the purpose of irrigating the aforesaid lands and procuring the necessary flow therefor.

6.

That on the 29th day of December, 1906, the predecessors in interest of said Twin Falls Salmon River Land and Water Company made application to the State Engineer of the State of Idaho, said application being numbered 3495, for authority and permission to divert 1500 second feet of the waters of said Salmon River in said Twin Falls County, State of Idaho, for the purpose of irrigation and domestic use upon the lands hereinbefore mentioned; that thereafter the State Engineer of the State of Idaho issued to the said predecessors in interest of the said Twin Falls Salmon River Land and Water Company upon the aforesaid application, Permit No. 2659, authorizing and permitting the predecessors in interest of the said Twin Falls Salmon River Land and Water Company to divert from said Salmon River in said Twin Falls County at the point hereinabove mentioned 1500 second feet of the waters of said stream for the purpose of irrigating the said lands hereinbefore mentioned; that prior to the commencement of any construction work under said permit, the permit and all rights acquired thereunder and thereby were conveyed to the Twin Falls Salmon River Land and Water Company;

That said company thereafter commenced and completed the construction of the irrigation works provided for and set forth in said permit, said works being so located that the aforesaid lands might be irrigated therefrom and having sufficient capacity therefor; that the said works so constructed are the

same works as the works specified in the said contract with the State of Idaho, Exhibit "A." The said irrigation works being completed, the State Engineer of the State of Idaho did on the 14th day of May, 1912, issue to the said Twin Falls Salmon River Land and Water Company, the holder of said Permit No. 2659 for the diversion of 1500 second feet of the waters of Salmon River in said Twin Falls County, State of Idaho, a certificate of completion of works as provided by the laws of the State of Idaho.

That said Twin Falls Salmon River Land and Water Company having complied with the terms of said application and permit, are now authorized and empowered and are entitled to the use of 1500 cubic feet per second of the waters of said Salmon River to be diverted at the point aforesaid and that their right to divert said waters dates from the said 29th day of December, 1906, said plaintiff and its successors in interest having priority to the use of said waters over all other persons appropriating the same since said date; that it requires the entire flow of Salmon River at said point of diversion to supply the right of the plaintiff herein.

7.

That said Salmon River is formed by various small streams and creeks joining together in the County of Elko, and State of Nevada, and running thence northward through a portion of said county into and through the County of Twin Falls and State of Idaho, and thence emptying into the Snake River in said

State; that a portion of the streams forming said Salmon River lie in Twin Falls County, State of Idaho, and flow southward and westerly into Elko County, State of Nevada, and empty into said Salmon River.

8.

That under the terms of the said contract, Exhibit "A", between the State of Idaho and the said Twin Falls Salmon River Land and Water Company, one of the plaintiffs herein, it was provided and required that the said Twin Falls Salmon River Land and Water Company should construct the irrigation works therein provided for and should thereafter organize a certain company to be called the Salmon River Canal Company, Limited, which company should after the completion of the works, own, operate and conduct the same and all water rights acquired under and by virtue of said Permit No. 2659, as more particularly set forth in paragraph IX of said contract; that after the making of said contract, Exhibit "A", and of the contract between the United States of America and the State of Idaho, providing for the transfer to said State of the lands hereinbefore described, approximately 80,000 acres of said land were thrown open for settlement by said State of Idaho in pursuance of the provisions of the laws of said State relating thereto and upwards of five hundred persons made entries of land upon said tract of land hereinbefore described in pursuance of the laws of said State and purchased shares of stock in the said Salmon River Canal Company, Limited, as provided by said contract, Exhibit "A"; that

said persons are desirous of using the waters of said stream for the irrigation of their lands and under the provisions of the laws of the State of Idaho relative thereto, they are required to irrigate and reclaim said lands by means of said irrigation system in order to acquire title to said lands.

That the United States of America will not make conveyance of the lands hereinbefore mentioned to the State of Idaho until said irrigation works are constructed and a supply of water sufficient for the reclamation of said lands is provided through said irrigation system.

9.

That the Salmon River Canal Company, Limited, the plaintiff herein, is the Salmon River Canal Company, Limited, sometimes called the Salmon River Canal Company mentioned in said agreement, Exhibit "A", and is the company whose shares of stock represent the water rights of the settlers upon the lands before mentioned and is the company for whose use and benefit the said irrigation works were constructed, all of which fully appears by reference to said contract, Exhibit "A", and is the company for whose use and benefit said water permit was acquired, and that the plaintiffs herein according to their respective interests, are the owners and holders of said irrigation works and said water permit No. 2659, and are now entitled to divert from said Salmon River at the point of diversion aforesaid, 1500 cubic feet per second of time of the waters of said stream, being the entire flow thereof at the point of

diversion hereinbefore mentioned; that all of the waters of said Salmon River are required for the irrigation of the lands hereinbefore mentioned which said lands are under and may be irrigated from the irrigation system of the plaintiffs herein.

10.

That the defendant herein is the owner of lands in Elko County, State of Nevada, and in Twin Falls County, State of Idaho; that said corporation has designated Twin Falls County, State of Idaho, as its principal place of business in the State of Idaho, and has appointed an agent therein upon whom the service of process may be made and has filed the designation of such agency with the Secretary of State of the State of Idaho, and with the County Recorder of said Twin Falls County.

11.

That the said defendant, the Vineyard Land and Stock Company, has commenced and is now constructing canals and ditches in the County of Elko and State of Nevada, for the purpose of appropriating, diverting and using the waters of said Salmon River and its tributaries in said Elko County and preventing the same from flowing down said stream into the State of Idaho and preventing the use of said waters by the plaintiffs herein and by the stockholders of said Salmon River Canal Company, Limited; that the said defendant threatens to and will unless prevented by the order, decree and judgment of this court, divert and use the waters of said stream be-

fore the same reaches the irrigation works of the plaintiff herein and will prevent the use of said waters by said plaintiffs and the stockholders of said Salmon River Canal Company, Limited, to the extent and in the manner in which they are entitled to use the same as hereinbefore set forth; that plaintiff is unable to ascertain the exact nature or extent of the claim made by the defendant herein to the waters of said Salmon River but that all of the rights of the defendant thereto are subsequent and subject to the rights of the plaintiffs herein and of the stockholders of the said Salmon River Canal Company, Limited.

12.

That plaintiffs herein are now in the use and enjoyment of said waters of said Salmon River and are using the entire flow of said stream for the irrigation of the lands hereinabove mentioned.

That notwithstanding the priority of the rights of the plaintiffs herein, the said defendant sets up and claims some rights to the use of the said waters of Salmon River prior and superior to the rights of the plaintiffs and of the said stockholders of said Salmon River Canal Company, Limited.

WHEREFORE, Your orators pray that the said defendant be required to fully set forth the nature of its demands and claims to the use of the waters of said Salmon River; that the right, title and interest of the plaintiffs herein, in and to the use of the waters of said Salmon River, be adjudged and decreed to be prior and superior to the rights of the defendant herein, and that the plaintiffs' right and

title to the use of said waters be quieted and determined; that the defendant, its agents, servants and successors in interest be forever enjoined and restrained from diverting or using the waters of said Salmon River and that a preliminary restraining order may issue herein and that a temporary injunction may issue pending the final determination of this suit, restraining and enjoining the said defendant from diverting or using the waters of said stream and that your orators may have all other further and proper relief.

May it please your Honor therefore to grant unto your orators the writ of subpoena to be issued from the Clerk's office of this court, directed to the said defendant and commanding it to appear herein upon a day to be named therein and full and true answer make to this Bill, but not under oath (an answer under oath being waived), and your orators will forever pray.

TWIN FALLS SALMON RIVER LAND AND
WATER COMPANY, a Corporation,
SALMON RIVER CANAL COMPANY, LIMITED,
a Corporation,

By S. H. HAYS,
Their Solicitor, residing at Boise, Idaho.

State of Idaho, County of Ada, ss.

S. H. HAYS, being first duly sworn deposes and says that he is the attorney and solicitor of the plaintiffs in the above entitled Bill; that he has read the foregoing Bill and knows the contents thereof and

that the same is true of his own knowledge except as to those matters therein stated to be upon information or belief and that as to those matters he believes it to be true.

That none of the officers of either of the plaintiffs herein are now within the County of Ada, and, therefore, this verification is made by said attorney.

S. H. HAYS.

Subscribed and sworn to before me this 20th day of May, 1912. A. L. Richardson, Clerk. By E. B. Yarrington, Deputy. (Seal).

Endorsed: Filed May 20th, 1912. A. L. Richardson, Clerk. By E. B. Yarrington, Deputy.

SUBSTANCE OF EXHIBIT "A".

Agreement Between the State of Idaho and Twin Falls Salmon River Land and Water Company.

THIS AGREEMENT, Made and entered into in duplicate this 30th day of April, 1908, by and between the State of Idaho, the party of the first part, through the State Board of Land Commissioners of said State, said Board consisting of Frank R. Gooding, Governor, Robert Lansdon, Secretary of State, John J. Guheen, Attorney General, and S. Belle Chamberlain, Superintendent of Public Instruction of said State, and the Twin Falls Salmon River Land and Water Company, a corporation organized and existing under the laws of the State of Delaware and duly authorized to do business in the State of Idaho (having complied with the laws thereof relative to

foreign corporations) the party of the second part,
WITNESSETH, That,

WHEREAS, the party of the second part has succeeded to all the rights of C. B. Hurtt, George F. Sprague, I. B. Perrine and H. L. Hollister for the irrigation of lands in Twin Falls County, State of Idaho, which rights are evidenced by the Proposal and Request heretofore made by them on the 12th day of August, 1907, which Proposal and Request were approved by the State Board of Land Commissioners of the State of Idaho on the 12th day of August, 1907, and

WHEREAS, all of the property, rights and franchises of the said C. B. Hurtt, George F. Sprague, I. B. Perrine and H. L. Hollister acquired under and by virtue of the said accepted Proposal and Request have by the consent of the State Board of Land Commissioners been duly transferred to the party of the second part herein.

IT IS MUTUALLY AGREED AND COVENANTED as follows:

Purpose of the Contract.

I. That for and in consideration of the covenants of the said party of the first part herein contained, the party of the second part agrees to construct and build those certain irrigation works mentioned and described in the aforesaid Proposal and Request dated on the 12th day of August, 1907, and hereinafter more particularly described and to sell shares or water rights in said canal and irrigation system from time to time as hereinafter provided to the

person or persons filing upon the lands hereinafter described and also to the owners of other lands not described herein but which are susceptible of irrigation from this canal system or from any extension or enlargement thereof; said shares or water rights to be sold on the terms hereinafter provided and also to transfer the ownership, management and control of said canal system to the purchasers of shares or water rights as hereinafter provided.

General Specifications for Construction:

Reservoir.

II. The reservoir is to be formed by a masonry dam two hundred and ten feet in height, five hundred and fifty feet long on top, founded upon a solid rock foundation and extending from wall to wall of the lava canyon on Salmon River in Section 18, Township 14 South of Range 15 East, Boise Meridian, in Twin Falls County, State of Idaho.

The reservoir formed by the dam will have a surface area of over three thousand acres, an available capacity of 180,000 acre feet and will extend southward from the dam a distance of approximately twelve miles.

Dam.

The dam will be constructed of rock solidly imbedded in concrete. Its top width to be fifteen feet, its bottom width (210 feet below crest) will be one hundred and nineteen feet; it will be built upon an arch of two hundred and twenty-five feet radius and with a height and length as above specified.

Tunnels.

The water will be diverted from the reservoir through a tunnel ten feet by ten feet in section equipped with suitable metal gates in concrete settings.

The first tunnel will be approximately 2500 feet long followed by an open cut approximately 800 feet long which cut will be followed by a second tunnel of the same length and cross section as the first. The tunnels are to be concrete lined where necessary and to be built upon a grade of one in one thousand.

Canal.

' Beyond the end of the second tunnel described above, the water shall be conveyed in open channels to the land to be reclaimed, using in part artificial channels and in part natural channels of suitable section grade and character of material. Both natural and artificial channels shall have a capacity of one-hundredth of one second feet of water for each acre of land served by them.

The main canal above the first point of distribution shall have a capacity of one thousand second feet, which is likewise the capacity of the tunnel section.

The grades and cross sections of the canal may vary to suit the local conditions and natural channels or coulees shall be utilized when suitable.

In earth sections, the main canal shall have a bottom width of thirty-two feet, a water depth of eight feet, the sides shall have slopes of three to one and the grade of the canal shall be one in five thousand.

Outlets from the main canal shall be built of con-

crete or other equally durable material with gates of wood or steel.

The canal system is to be surveyed and laterals are to be hereafter located, all entries of land being made subject to such location.

Changes in these plans and specifications may be made by second party with the consent of the State Engineer and the State Board of Land Commissioners.

Detailed plans will be hereafter filed with the State Engineer and with the State Land Board and when so approved shall become final.

Right of Way.

III. (Provides for rights of way over lands belonging to the State of Idaho or lands that may be ceded to the State by Act of Congress commonly known as the Carey Act; also that the number and location of laterals and waste ditches shall be determined by the Chief Engineer of the company, subject to the approval of the State Engineer; also that detailed maps showing location of canals, laterals, reservoir and waste ditches shall be filed with the Board and with the State Engineer; also that no compensation shall be paid to land owners for rights of way herein provided for.)

Appropriation of Water.

IV. The party of the second part is the owner of that certain water right evidenced by Permit No. 2659 for 1500 cubic feet per second of the waters of Salmon River in Twin Falls County, State of Idaho,

issued by the State Engineer of the State of Idaho, to be used for the irrigation of the lands described in Exhibit "A" herewith, together with other lands susceptible of irrigation from said system, which water right is hereby dedicated for use upon said lands and it is agreed and understood that the dam hereinbefore mentioned shall be constructed so as to provide a reservoir for the impounding of 180,000 acre feet of water, which amount, in addition to the normal flow of the said stream during the irrigation period, has been determined to be sufficient to furnish two and three-fourths acre feet of water per acre for each acre of land to be irrigated.

And the second party promises and agrees to build and construct the canal and lateral system of sufficient capacity to deliver water to the users thereof at the rate of one-hundredth of a second foot per acre for each acre of land to be irrigated.

Entry of Lands.

V. Upon the execution of this contract and when the actual construction of said canal shall have been inaugurated the said party of the first part will, after notice given in conformity with law, throw open the hereinafter described lands or a specified portion thereof for settlement under such regulations as to the manner of said opening as shall be prescribed by the State Board of Land Commissioners.

Application for Lands.

VI. The said party of the first part through its State Board of Land Commissioners agrees that it

will not approve any application for or filing on the lands hereinafter described until the person or persons so applying shall furnish to the said Board a true copy of the contract entered into with the party of the second part for the purchase of sufficient shares or water rights in said irrigation works for the irrigation of said lands; said shares or water rights to be evidenced by the stock of the Salmon River Canal Company, Limited, as hereinafter provided and the said second party stipulates and agrees that to the extent of the capacity of the irrigation works and to the extent of the water rights to which it is entitled as rapidly as lands are open for entry and settlement, it will sell or contract to sell water rights or shares for land to be filed upon the qualified entrymen or purchasers without preference or partiality other than that based upon priority of application, it being understood, however, that priority of application or priority of entry or settlement shall not give any priority of right to the use of water flowing through the canal against subsequent purchasers but shall entitle the purchaser to a proportionate interest only therein, the water rights having been taken for the benefit of the entire tract of land to be irrigated from the system. The priority of application upon the opening days shall be determined by a system to be devised under the direction of the State Board of Land Commissioners.

Sale of Land by the State.

VII. That the said party of the first part, acting through its State Board of Land Commissioners,

agrees to sell the lands herein described to such persons as are or may be by law entitled to file upon the same for the sum of fifty cents (\$.50) per acre, half of which sum shall be paid at the time of application for the entry of such lands made to said Board and the remaining one-half at the time of making of final proof thereon.

Price of Water Rights.

VIII. (Provides that second party is to sell settlers one share, representing one-hundredth of a second foot of water for each acre at forty dollars (\$40) per share, to be paid, one-fifth in cash on date of agreement, and remainder in five equal annual installments, with interest at six per cent. per annum; also for additional charge of two dollars forty cents (\$2.40) for each share for each year's delay, or fraction thereof, in the purchase of water rights after one year from the date lands are thrown open for settlement; also provides that this agreement shall not be construed to prevent the sale of water rights on terms more favorable than those herein provided for, or to prevent the payment of installments on the purchase price in advance of maturity, at option of purchaser.)

Transfer of Possession and Management of Canal.

IX. It being necessary to provide a convenient method of transferring the ownership and control of said canal from the said party of the second part herein to the purchasers of water rights in said canal and for determining their rights among themselves and between said purchasers and the party of the

second part herein; for the purpose of operating and maintaining said canal during the period of construction and afterwards for the purpose of levying and collecting toll charges and assessments for the carrying on and maintenance of said canal and the operation and management thereof, it is hereby provided that as soon as said lands are ordered thrown open for settlement a corporation to be known as the Salmon River Canal Company, Limited, shall be formed at the expense of the party of the second part, the articles of incorporation of said company to be in substantially the form which is filed herewith and made a part hereof; that the authorized capital stock of said corporation shall be one hundred and fifty thousand shares (150,000) which amount is intended to represent one share for each acre of land which may be hereafter irrigated from said canal. The entire authorized amount of the capital stock of said corporation shall be delivered to the party of the second part herein in consideration of the covenants and agreements herein contained in order to enable it to deliver to purchasers of water rights the shares of stock representing the same; said shares of stock, however, shall have no voting power and shall not have force and effect until they have been sold or contracted to be sold to the purchasers of land under this irrigation system. At the time of the purchase of any water right, or as soon thereafter as convenient, there shall be issued to the purchaser thereof one share of the capital stock of said corporation for each acre of land entered or filed upon; that the said

party of the second part therein shall in case said water rights or shares of stock are not fully paid for require the endorsement and delivery to it of said stock and shall at the same time require of said purchaser an agreement that until thirty-five per cent. of the purchase price of said stock has been paid, the said party of the second part therein shall vote said stock in such manner as it may deem proper at all meetings of the stockholders of said corporation and the said Salmon River Canal Company shall have the management, ownership and control, as above set out, of the said canal system as fast as the same is completed and turned over by it for operation by the said party of the second part, as hereinafter provided. Whenever it is certified by the Chief Engineer of the company and the State Engineer that certain portions of the said canal are completed for the purpose of operation, the same may, with the consent of the State Land Board be turned over to the Salmon River Canal Company, Limited, for operation. Such transfer and operation, however, shall not in any manner lessen the responsibility of the said second party with reference to the terms of the contract, nor shall such consent upon the part of the State Land Board be construed as a final acceptance of such portion of such canal, it being always understood that the acceptance of such canal must be in its entirety and that the bond given for the faithful performance of the said contract must be made and be liable for the substantial completion of the entire canal system.

Water Rights Dedicated.

X. (Provides that certificates of shares of stock of Salmon River Canal Company, Limited, shall be made to indicate and define the interests thereby represented in said system as provided in paragraphs 4 and 8 of this agreement; also provides for method of delivering water to the irrigators during the time the party of the second part retains control of the Salmon River Canal Company, Limited; also provides that the sale of water rights to purchasers shall be a dedication of the water to the lands to which the same are to be applied, and that the irrigation season includes the period from April 1st to November 1st of each year; that a domestic supply outside of irrigation season shall be delivered under such regulations and terms as shall be determined by the said Salmon River Canal Company, Limited.)

Management of Water and Charges for Delivery.

XI. (Provides that water must be made available at a point not to exceed one-half mile measured in a direct line from each quarter section of land; that each settler shall under the direction of the Chief Engineer of the second party build and furnish one gate and measuring device for his own use, but all other gates, weirs and measuring devices in the main canals or main or subordinate laterals shall be furnished by the second party; that no charge shall be made to purchaser for delivery of water prior to the 1st day of January, 1911, but thereafter for each succeeding year while second party retains control it may charge and assess purchasers of water rights

thirty-five cents per acre, which sum is to be paid on the 1st day of March of each year; that if the sum so raised shall be insufficient prior to January 1st, 1913, for purposes of maintenance, operation and repair and for paying expenses of management, second party will furnish funds to supply such deficiency; after said date actual costs of maintenance are to be paid by the settlers; defines terms "main lateral" and "subordinate lateral," and that coulees or draws used as a main lateral shall be included within these terms.")

Completion of System.

XII. Said party of the second part agrees to begin work on said irrigation system within six months from the date of this contract and to complete 1-5 of the construction work within two years from this date; that the construction work shall be prosecuted diligently and continuously to completion and that a cessation of work under this contract for a period of six months after the second year without the sanction of the State Board of Land Commissioners will forfeit to the State all rights under this contract.

Second party agrees to have said canal system constructed in accordance with this contract within five years from the date hereof; it being understood, however, that detailed plans and specifications of said work have not yet been completed and that such detailed plans and specifications are to be approved by the State Engineer and that with his consent and the consent of the State Land Board alterations and changes may be made in the plans prepared and filed.

Forfeiture.

XIII. It is agreed that the rights of second party herein may be forfeited in accordance with the laws of the State of Idaho relative to that subject which are now in force and effect.

Estimated Cost.

XIV. The estimated cost of the proposed irrigation works is \$2,500,000 and upwards and the price at which water rights are fixed herein and for which liens are hereby authorized and created against the separate legal sub-divisions of land herein described are deemed necessary in order to pay the costs and expenses of reclamation and interest thereon. The existing laws under which this contract is made are understood and agreed to be a part of this contract.

Description of Lands.

XV. The lands hereinbefore referred to are lands donated by the Act of Congress to the State of Idaho, under and pursuant to the Act of Congress approved August 18th, 1894, and the Amendments relating thereto, commonly called the Carey Act, and also other lands hereinafter described, the irrigation and reclamation of which lands this contract is designed to effect. The lands to be reclaimed under said "Carey Act" are fully set forth in the list herewith marked Exhibit "A" which is hereby referred to and made a part hereof.

Highways.

XVI. (Provides that land entries are made subject to rights of way for roads.)

Water Supply for Cities and Towns.

XVII. (Provides for water supply for cities and towns under certain conditions.)

Delivery of Water to Users.

XVIII. (Provides that water shall not be delivered to persons who have not purchased water rights.)

Mortgage.

XIX. (Provides that system may be mortgaged.)

Amendments.

XX. (Provides how contract may be amended; that detailed plans and specifications shall be filed from time to time as the work progresses; that with the consent of the State Land Board the irrigation system may be enlarged to cover lands not under the system as at present designed.)

Coulees and Draws.

XXI. (Provides that coulees and draws may be used as waterways when made to conform to artificially constructed laterals.)

Whereas, All the requirements of the law have been, in so far as this contract is concerned, fully met and in every respect complied with; the execution of this contract is therefore ordered.

In Witness Whereof, the said party of the first part, the State of Idaho, has by resolution of its State Board of Land Commissioners caused this agreement to be signed in duplicate by its governor, who is ex-officio president of said State Board of Land Commissioners, and attested by the registrar of said Board.

And the said party of the second part has heretofore caused its corporate name to be subscribed by its proper officer and to be duly attested, as provided by resolution of this Board of Directors.

STATE BOARD OF LAND COMMISSIONERS,
By F. N. Gooding,
Governor and ex-officio President.

Attest: M. I. Church,
Registrar.

TWIN FALLS SALMON RIVER LAND AND
WATER CO., By W. S. Kuhn, President.

Attest: A. E. DeBois,
Assistant Secretary.

Endorsed: Filed May 20, 1912.

A. L. Richardson, Clerk.

By E. B. Yarrington.

(Title of Court and Cause.)

AMENDMENT TO BILL.

Come now the plaintiffs herein and ask leave of the Court to amend the bill herein by adding thereto paragraph thirteen, said paragraph thirteen to read as follows:

13.

That the value of the matter in controversy herein exceeds the sum of three thousand (\$3,000.00) dollars, exclusive of interest and costs;

That defendant herein threatens to and will unless restrained by the order of this Court divert from said Salmon River and its tributaries, of the waters belonging to plaintiff, more than sufficient thereof to

irrigate one thousand acres of land, which water is of the value of forty thousand (\$40,000) dollars;

That if said waters are permanently withheld from plaintiffs as defendant threatens to do, a large number of the persons who have heretofore entered lands thrown open for settlement by the state will be without a water supply and the United States of America will under the terms of its contract with the State of Idaho made under and pursuant to the Act of Congress commonly known as the Carey Act, refuse to issue to said State a patent for said lands.

S. H. HAYS,

Solicitor for Complainants.

Endorsed: Filed Sept. 13, 1913.

A. L. Richardson, Clerk.

In Equity No. 405.

(Title of Court and Cause.)

AMENDED ANSWER AND COUNTERCLAIM.

Comes now the defendant in the above and foregoing action, and for answer to the allegations and demands of relief on behalf of the plaintiffs, admits, denies and alleges, and for further Amended Answer and Counterclaim, setting forth its claims in the premises, says:

1.

Answering paragraph 1 of the Complaint, admits the allegations thereof.

2.

Answering paragraph 2 of the Complaint, admits the allegations thereof.

3.

Answering paragraph 3 of the complaint, and particularly the first sub-paragraph thereof, this defendant is without knowledge particularly of the allegation therein that on the 12th day of August, 1907, I. B. Perrine, together with other persons, made application to the State Board of Land Commissioners of Idaho, as therein alleged, or that they proposed to construct certain irrigation works in Twin Falls County, Idaho, as therein set forth, for the purpose of irrigating the acreage of land as therein set forth; and this defendant is without knowledge as to said lands being arid in character and to require irrigation to produce crops thereon.

As to the remaining allegations of said paragraph this defendant is without knowledge as to the truth thereof.

4.

Answering paragraph 4, this defendant is without knowledge as to each and every of the allegations therein set forth.

5.

Answering paragraph 5, and particularly the first sub-paragraph thereof, defendant admits the execution of the contract therein set forth, and the purposes thereof, as alleged.

Answering the second sub-paragraph thereof, this defendant is without knowledge as to whether the plaintiff has completed the construction of said dams, channels or canals as required by said contract, as

alleged, and further denies that it is necessary to divert from said Salmon River at the point of diversion therein alleged, the amount of 1500 cu. ft. per second of the waters of said river for irrigation purposes, as alleged; and is without knowledge that said dam has been constructed, and said reservoir provided, as therein alleged, or otherwise than as herein-after more fully set forth.

Denies that the highest flow of water of said Salmon River is 1500 cubic feet per second, and further denies that it is necessary to gather and use the entire flow of said river, as alleged, for the purpose of irrigating the lands in said Complaint set forth.

6.

Answering paragraph 6, the defendant admits the making of the application numbered 3495, but is without knowledge as to whether same was made by the predecessor in interest of the plaintiff Twin Falls Salmon River Land & Water Company; admits that the State Engineer of the State of Idaho, issued the alleged permit numbered 2659, but is without knowledge that said parties to whom issued were the predecessors in interest of the Twin Falls Salmon River Land & Water Company, or that it was for the purpose of irrigating the lands mentioned in said complaint; is without knowledge as to the allegation therein that prior to the commencement of any construction work under said permit, said permit and all rights acquired thereunder and thereby were conveyed to said Twin Falls Salmon River Land & Water Company, as alleged.

Is without knowledge as to whether said company completed or has completed the construction of the irrigation works alleged and set forth in said permit, or that said works are so erected that said lands may be irrigated therefrom, or that they or any works have sufficient capacity therefor; is without knowledge that said works are the same works specified in the contract set forth, or that they have been constructed in accordance therewith.

Admits that the State Engineer of the State of Idaho issued to said Twin Falls Salmon River Land & Water Company a certificate of completion, as alleged.

Further answering the last sub-paragraph of said paragraph 6, this defendant is particularly without knowledge, and therefore, denies that said Twin Falls Salmon River Land & Water Company was authorized or empowered, or is entitled to the use of 1500 cubic feet per second of the waters of said Salmon River to be diverted at the point of diversion, as alleged, or is otherwise entitled thereto other than subsequent to the right of this defendant herein to use the waters of said river, as hereinafter and in its Counter-Claim more fully set forth; and further denies that the said plaintiff is entitled to a right of diversion from the 29th day of December, 1906, as therein alleged; and denies that said plaintiff, and its successors in interest have priority to use all or any of said waters over this defendant from said date; and denies that said plaintiff requires the entire flow

of said Salmon River at said point of diversion to supply its right, as therein alleged.

And further denies that said plaintiff, or any one by reason of said alleged permits, diversions, or otherwise, are entitled to any of the flow of the waters of said Salmon River, except subject to the prior right therein and the use thereof by this defendant, as hereinafter and in the Counter-Claim herein more fully set forth.

7.

Answering paragraph 7, admits that said Salmon River is formed by various streams uniting in Elko County, Nevada, and running thence north out of said County and State into said Twin Falls County, Idaho, as therein alleged; and admits that a portion of the streams so forming said river lie in Twin Falls County, Idaho, and flow southwesterly into said Salmon River, in Elko County, State of Nevada; but in this regard alleges that there is only one such stream, to-wit, some small tributaries to what is known as Shoshone Creek that rise in said Twin Falls County, Idaho, and that aside therefrom all the waters of such river arise wholly within the State of Nevada.

8.

Answering paragraph 8, admits that in accordance with the contract set out the plaintiff, Twin Falls Salmon River Land & Water Company, should construct certain works provided for therein, and should organize a company, as therein set forth and alleged, to-wit, to be known as the Salmon River Canal Company, Limited, as in said contract set forth.

This defendant is without knowledge as to the contract between the United States of America and the State of Idaho, as therein set forth, and is without knowledge as to the 80,000 acres of land being thrown open for settlement, as in said paragraph alleged; and is further without knowledge that upwards of 500 persons have made entries of land upon said tract of land, as alleged, or that said persons have purchased shares of stock in the said plaintiff Salmon River Canal Company, Limited, as provided in said alleged contract; is without knowledge that said persons are desirous of using the waters of said streams for the irrigation of their lands, or any lands, under the provisions of the laws of the State of Idaho, as in said paragraph alleged.

9.

Answering paragraph 9, defendant is without knowledge as to whether said plaintiff Salmon River Canal Company, Limited, is the same Company set forth in the complaint therein, as found in Exhibit A, and is without knowledge that said company is the one whose shares of stock represent the water rights of the settlers upon the lands mentioned in said complaint, and is without knowledge as to whether said company is the one for whose use and benefit the irrigation works were constructed, if same were constructed, and is without knowledge as to whether said company is the one for whose use and benefit said water permits were acquired; and is without knowledge as to whether plaintiffs, respectively, as alleged, are the owners and holders of said irriga-

tion works and said water permit. And further denies specifically that said companies, or either of them, as alleged, are entitled to divert from said Salmon River, at the alleged point of diversion, 1500 cubic feet per second of time of the waters of said stream, or the entire flow thereof at the point of diversion, as alleged, and specifically denies that all the waters of said River, as alleged, are required for the irrigation of the lands mentioned in said complaint, and is without knowledge as to whether said lands, or all of them or any part thereof, are under or may be irrigated from said or any irrigation system of the plaintiffs herein.

10.

Admits that this defendant is the owner of lands in Elko County, State of Nevada, and as hereinafter more fully set forth in its Counter-claim, and which is hereby referred to to avoid repetition, and admits that it is the owner of certain lands in Twin Falls County, State of Idaho, irrigated from certain streams therein, or flowing therein, or therethrough, as tributaries of said Shoshone Creek.

Admits the other allegations of paragraph 10; but alleges that the service of process herein was not made upon the defendant personally by service upon any of its proper officers, but service was made only upon its designated agent in the said State of Idaho.

11.

Answering paragraph 11, this defendant admits that it has commenced, is constructing, and has been using canals and ditches in Elko County, Nevada, for

the purpose of appropriating, diverting and using the waters of said Salmon River and certain of its tributaries in said County and State as hereinafter more fully set forth, but denies that it prevents same from flowing down said stream into the said State of Idaho, or that it prevents the use of the waters of said stream by the plaintiffs herein or by the stockholders of said Salmon River Canal Company, or otherwise than it has a right so to do by reason of prior right, use and appropriation to that set forth in the complaint.

Admits that the defendant has and does divert and use a portion of the waters of said stream before the same reaches the alleged irrigation works of the plaintiff herein; but denies that it does so other than as it has a right so to do, as hereinafter more fully set forth; and denies that it prevents the use of the waters of said stream by the plaintiffs and the stockholders of said Salmon River Canal Company, Limited, as in said paragraph set forth.

Denies particularly the allegations of said paragraph that the rights of the defendant in said stream, or any part thereof, as alleged, are subsequent to or subject to any of the alleged rights of the plaintiff or of the stockholders of said Salmon River Canal Company, Limited.

12.

Answering paragraph 12, this defendant denies that the said plaintiffs, as therein alleged, are now or have been in the use or enjoyment of said Salmon River otherwise than as waters of same are permit-

ted to flow down after being used under the claims and rights of this defendant, and denies that it is using the entire flow of said stream, as therein alleged, for the irrigation of said alleged lands.

Denies the alleged priority of the plaintiffs herein, and admits that this defendant claims the right to the use of the waters of said river prior and superior to the rights of the plaintiffs, or either of them, and prior to the rights of the said stockholders of said Salmon River Canal Company, Limited.

13.

Alleges that the laws of the State of Nevada, existing at the time of the alleged appropriation by the plaintiffs and at and prior to the diversions, appropriations and user by the defendant, as hereinafter set forth, provided as follows: "All natural water courses and natural lakes and the waters thereof which are not held in private ownership belong to the State and are subject to appropriation for beneficial uses," and further alleges that the diversions, appropriation and uses of the water of said Salmon River and its tributaries by this defendant and its predecessors in interest have been and are for beneficial purposes and uses.

14.

That this defendant is informed and believes, and therefore alleges that there is a sufficient amount of water in said Salmon River, after supplying the rights and claims of this defendant, and flowing down therein, if properly conserved by the plaintiff, to properly irrigate all the available lands of the

plaintiff under cultivation, or that may be put into cultivation.

Further answering the prayer of the Complaint that the defendant set forth its claims to the waters of said Salmon River, and to that end, and by way of Amended Cross Bill or Counter-claim, this defendant alleges:

15.

That the said Twin Falls Salmon River Land & Water Company, as defendant, is informed and believes, is a corporation, organized and existing, under and by virtue of the laws of Delaware, and a citizen of said State, and authorized and empowered to do business in the State of Idaho.

And that the said Salmon River Canal Company, Limited, as defendant is informed and believes, is a corporation, organized and existing under the laws of the State of Idaho, and a citizen thereof.

16.

That this defendant and counter-claimant, the Vineyard Land & Stock Company, is a corporation, organized and existing, under and by virtue of the laws of the State of Utah, and a citizen thereof.

17.

That this defendant, and its predecessors in interest, now own, and for many years prior hereto have owned more than 25,000 acres of land, all arid in character and situated along the course of and within the water-sheds of what is known as Little Salmon River, and the tributaries thereof, mostly in Elko

County, State of Nevada, with a small portion in the State of Idaho, said tributaries being what are known as Nall Creek, Jakes Creek, Willow Springs Creek, Trout Creek, Shoshone Creek, and what is known as Warm Springs.

That said Salmon River is a non-navigable, interstate stream, originating (except as hereinafter set forth as to a minor tributary) wholly in the said State of Nevada, and running thence from said Elko County, north, into the State of Idaho, where it empties into Snake River, also an interstate stream. That some small branches of what is known as Shoshone Creek rise or run through said Twin Falls County, Idaho, and thence into said Shoshone Creek, and thereafter into said Salmon River, but that the amount of water used from said Shoshone Creek by defendant is far less than the flow of said stream after deducting the whole volume of such branches or tributaries, and that the amount of the waters of such tributaries flow down to plaintiffs.

18.

That the statutes and laws of the State of Nevada, as they existed at and prior to the alleged appropriation of the said plaintiffs, and at and prior to the time of the diversions, appropriations and user of the waters hereinafter set forth, by this defendant, provided as follows: "All natural water courses and natural lakes, and the waters thereof which are not held in private ownership, belong to the State, and are subject to appropriation for beneficial uses;" and that said appropriations, diversions and uses of the wa-

ters of said Salmon River by this defendant were and are for beneficial purposes and uses. That all the lands of this defendant in said County and State, or as may be situate within the State of Idaho, are arid in character, requiring artificial application of water to produce crops or grass, or verdure of any kind thereon, and that said defendant, and the other owners of lands in said Nevada, adjacent to and that may be irrigated from said river and its tributaries, are entitled to the prior rights to the appropriation, diversion and use thereof for such lands in cultivation or susceptible to being placed under cultivation, or requiring irrigation to produce crops or grasses thereon, and that said waters are necessary for such lands within said County and State.

19.

That along and upon said Salmon River and its tributaries, and within the water-sheds of such river, mostly in said Elko County, Nevada, and in irregular bodies, from the bulk of the land hereinbefore set forth, this defendant owns, and its predecessors owned for many years prior to the year 1906, and prior to the time of the alleged appropriation of the plaintiffs, about 18,000 acres of grazing and irrigable lands, susceptible to cultivation and the production of crops, wild and tame grasses, to-wit: About 13,500 acres thereof being immediately along and upon said river and its said tributaries, and in Townships 43, 44 and 45 North, of Range 63 E. M. D. M., in Townships 43, 44, 45, 46 and 47 North, of Range 64, E. M. D. M., and Townships 43, 44, 45 and 47 North, of

Range 65 E. M. D. M., in the State of Nevada and in Township 16 South, of Range 17 East, B. M., in Twin Falls County, Idaho, and situate upon, along and adjacent to what are known as Nall, Jakes, Willow Springs, Warm Springs, Trout and Shoshone Creek, and branches thereof, respectively, and said Salmon River proper.

That said lands are, and have been irrigated and rendered productive for crops and grazing purposes from the waters of said streams, part of same by flooding and sub-irrigation from the natural flow of said streams, and part from dams and ditches, and other means of spreading, flooding and otherwise utilizing the water upon said lands, and the remainder thereof by dams and ditches, wholly diverting the waters of said streams to and upon such respective lands.

That all said foregoing lands, with the waters for such irrigation thereof, have been, since long prior to the alleged appropriation of the plaintiffs, continuously diverted and used by the defendant, and its predecessors, for the growing of crops thereof, and for grazing and stock purposes, during each and every year.

That in addition to the foregoing lands so irrigated, and contiguous to those along Salmon River proper, this defendant owns and its predecessors owned for many years prior to the said year 1906, about 4500 acres of irrigable lands that are and may be watered from said Salmon River, and its tributaries thereabove, and lying below a certain main

ditch hereinafter described as the Harrell, Maxon or Big Ditch, and located in more or less irregular shape in Townships 46 and 47 North, of Range 64 E. M. D. M., and in townships 46 and 47 North, of Range 65 E. M. D. M., in said Elko County, Nevada.

That all of said last described lands are arid in character and will not produce hay, grain, vegetables, grasses, or other growth thereon without the application and use of the waters of said streams thereon.

20.

That during the irrigation season of each and every year since long prior to the alleged appropriations of plaintiffs, the defendant has been entitled to and did, during all the times hereinbefore set forth, and long prior to the alleged appropriations of plaintiffs, divert and use all the waters of what is known as Nall Creek, Jakes Creek, Willow Springs Creek and Trout Creek, upon the lands described herein as using the same in said Nevada, and has likewise used all the waters from what is known as Warm Springs; and that during such season none of the waters thereof have or did reach said Salmon River.

21.

That if said land, hereinbefore described, about 1000 acres is situated upon said Shoshone Creek and its tributaries, in said Twin Falls and Elko Counties, and is irrigated therefrom, and defendant is entitled, by prior diversion and use, to said waters for irrigation of such lands. That one or two small

tributaries of said Shoshone Creek, of very small flow of water, having their source in Twin Falls County, Idaho, empty into and become a part of said Shoshone Creek, but that the volume of water that constantly flows from said Shoshone Creek into said Salmon River is at all seasons far in excess of the amount and volume of water emptying from said Idaho tributaries into said Shoshone Creek.

22.

That for said described tract of land of about 4500 acres, as hereinbefore set forth, under what is known as the Harrell, Maxon or Big Ditch, the predecessors of this defendant, in the years 1892 and 1897, appropriated 5000 miners' inches and 200 cubic feet per second, respectively, of the waters of said Salmon River for irrigating said lands, and pursuant to such appropriations and thereafter by actual diversion, appropriation and user, and by means of dams and ditches, and canals of sufficient size and capacity, diverted said water and commenced the use thereof in bringing said lands under proper cultivation, and since said time the said predecessors of this defendant, as rapidly as conditions, their circumstances and means permitted, carried on the construction of such ditches and the placing of said lands under cultivation, and this defendant since becoming the owner of said lands and water rights, has continued and is now completing said use and the placing of said lands under cultivation as fast as conditions and circumstances permit.

23.

That for the successful irrigation of all of said lands, and to produce crops or grasses, for cutting or grazing, it required at least a cubic foot per second for each 50 acres thereof.

24.

That this defendant is now, and its predecessors have been, in the use and enjoyment of the waters of said Salmon River, and its said tributaries, during each and every irrigating season, and for irrigating the whole extent of said lands herein set forth as cultivated, used for grazing or otherwise, since long prior to the alleged claims of plaintiffs herein; and have, in the low season of each and every year, diverted and used, since long prior to the alleged appropriation of the plaintiffs, and have been, and are, entitled to so divert and use the whole of the waters of said Salmon River, and its tributaries at its lowest canal above what is known as said Shoshone Creek; and has been, and is, entitled to have the use of all of said described lands as heretofore, and theretofore, cultivated or otherwise grazed or used for beneficial uses, and has been and is entitled to all the necessary water from said streams required to produce such crops or grasses as heretofore has been done, or as may be necessary to irrigate the same, and to have the beneficial use thereof by any other or different methods of irrigation.

That notwithstanding the right to divert and use, and the actual diversion and use thereof, as hereinbefore set forth, and the appropriation of all the

waters of said streams, a large portion thereof finds its way back to the channel of said river and flows down to the point of diversion of the plaintiffs, and, together with other waters reaching the said reservoir of the plaintiffs, is sufficient for the proper irrigation of all the lands of plaintiffs heretofore or now irrigated.

That, as this defendant is informed and believes, and so alleges, said plaintiffs do not conserve or utilize all of the waters flowing down to said reservoir, but, on the contrary, permit large volumes of the water reaching such reservoir to escape therefrom during all seasons and to be thereby wholly wasted for any beneficial or other use to the plaintiffs.

25.

That the claims and rights of said plaintiffs to said waters, herein set forth, if any, are inferior to and subject to the rights therein and of the defendant for the irrigation and beneficial use of its lands heretofore and now used, cultivated or irrigated, as well as for all additional lands in course of reduction to cultivation, and for which the waters of said streams have been diverted or appropriated, or to which said waters are being actually applied and proposed to be applied under such diversions and appropriation and user.

26.

Wherefore, your orator prays that said plaintiffs take nothing under their Bill and Prayer, and particularly that they take nothing as against this de-

defendant as to the decreeing of their rights as superior to those of the defendant, and that no injunctive relief thereon be granted to plaintiffs; and that this defendant be adjudged and decreed to have a superior and first right to the waters of said streams, and this counter-claim set forth, to the extent of the irrigation, cultivation or otherwise of the lands heretofore and prior hereto put to a beneficial use, and for those now being and under appropriation proposed to be put to beneficial use, and that said plaintiffs, their agents, servants, employees and successors in interest be forever restrained and enjoined from in any manner interfering with the use and right to the use of the waters by this defendant, its successors or assigns for the beneficial use of such lands, and for such other and further relief as may seem meet and proper in the premises.

Wherefore, your Petitioner prays for relief in accordance with the facts and allegations herein set forth.

VINEYARD LAND & STOCK COMPANY,

By C. A. Boyd.

BOYD, DEVINE & ECCLES,

301-4 First National Bank Bldg., Ogden, Utah,

Its Solicitors.

N. M. Ruick, Boise, Idaho.

Endorsed: Filed April 27, 1914.

A. L. Richardson, Clerk.

(Title of Court and Cause.)

ANSWER TO AMENDED CROSS-BILL OR
COUNTERCLAIM.

Comes now the plaintiffs herein answering the amended cross-bill or counter-claim filed in the above cause and say :

1.

That plaintiffs admit the ownership by the defendant of some lands in Elko County, State of Nevada, but as to the area thereof, they have no knowledge or information sufficient to enable them to answer and therefore deny that the said defendant is the owner of more than 25,000 acres of land, arid in character, situated along the course of or within the water sheds of the Little Salmon River and its tributaries.

Plaintiffs deny that said Salmon River originates, except as to a minor tributary mentioned in the counter-claim, wholly in the State of Nevada, and deny that the amount of water used from Shoshone Creek by the defendant is less than the flow of the stream after deducting the whole volume of the branches or tributaries mentioned in paragraph seventeen of the counter-claim herein, and deny that the amount of the water of such tributaries flows down to plaintiffs.

2.

That plaintiffs have no knowledge, information or belief sufficient to enable them to answer with regard to the statutes and laws of the State of Nevada as existed at and prior to plaintiff's appropriations, and at and prior to the time of diversions, appropriations,

and users of the waters claimed by the defendant in said counter-claim, and therefore deny the same as set forth in paragraph eighteen of said counter-claim.

Plaintiffs deny that all of the lands of the defendant in the State of Nevada, or such portion of them as may be situate in the State of Idaho, are arid in character or require artificial application of water to produce crops or grass, and deny that defendant or the other owners of land in Nevada adjacent to and that may be irrigated from the Salmon River and its tributaries are entitled to prior rights of appropriation, diversion or use of the waters of said stream or streams for such lands in cultivation, or susceptible to being placed under cultivation or requiring irrigation to produce crops or grasses thereon, or that said waters are necessary for such land within said State.

3.

That plaintiffs have no knowledge, information or belief sufficient to enable them to answer as to whether or not the defendant or its predecessors in interest for many years prior to 1906, or prior to the time of the plaintiffs' appropriation of the waters of the Salmon River owned 18,000 acres of grazing or irrigable lands susceptible to cultivation and the production of crops of wild or tame grasses or any other crops, or whether about 13,500 acres thereof or any other amount was immediately along and upon said river or its tributaries in the townships mentioned in paragraph nineteen of the counter-claim herein, and

therefore deny the same and each and every allegation of the said paragraph nineteen, and plaintiffs deny that the said lands mentioned in said paragraph are or have been irrigated or rendered productive for crops or grazing purposes from the waters of the stream mentioned in said counter-claim, or otherwise either by flooding or sub-irrigation from the natural flow of said streams or from dams or ditches, or from any other means whatever either by dams or ditches diverting the waters of said stream or streams, or by any other appliances or means. Plaintiffs deny that said lands described in said counter-claim, with the waters for the irrigation thereof, have been, prior to the appropriations of the plaintiffs, continuously diverted or diverted at all, or used by the defendant or its predecessors for the growing of crops, or for grazing or stock purposes during each and every year or during any year.

Upon information and belief, plaintiffs deny that in addition to the lands mentioned in the first three subdivisions of paragraph nineteen of the counter-claim herein and contiguous to the lands of the defendant along the Salmon River proper that the defendant owns or its predecessors owned prior to the year 1906, 4500 or any other number of acres of irrigable lands that are or may be watered from the Salmon River or its tributaries and lying below a certain main ditch known as the Harrell, Maxon or Big Ditch and located in Townships forty-six and forty-seven North of Range sixty-four E. M. D. M., and in Townships forty-six and forty-seven North of

Range sixty-five E. M. D. M., in Elko County, State of Nevada, and plaintiffs deny that the lands last described are arid in character or that they will not produce crops without the application or use of water from the streams mentioned in the counter-claim.

4.

Plaintiffs deny that during the irrigation season of each and every year since the time and prior to the appropriation of the plaintiffs, that the defendant has been entitled to or did during the times set forth in the counter-claim herein, or prior to the appropriation of the plaintiffs divert or use all or any of the waters of what is known as Nall Creek, Jakes Creek, Willow Springs Creek or Trout Creek upon the lands described in the counterclaim herein in the said State of Nevada, or that it has likewise used the waters from what is known as Warm Springs, and plaintiffs deny that during the season or seasons mentioned in paragraph twenty of the counter-claim herein, that none of the waters of said streams have reached or did reach the said Salmon River.

5.

Plaintiffs deny that a thousand acres of the lands mentioned in paragraph twenty-one of the counter-claim herein, or any part thereof, are irrigated from Shoshone Creek, and deny that the defendant is entitled by a prior diversion or use to the said waters for the irrigation of such lands, and plaintiffs deny that the volume of water that constantly flows from Shoshone Creek into Salmon River is at all seasons

or at any time in excess in amount of the volume of water emptying from the tributaries of said stream in Idaho to said Shoshone Creek.

6.

Plaintiffs on information and belief deny that for the tract of land of about 4500 acres or any part thereof, mentioned in paragraph 22 of the counterclaim herein under what is known as the Harrell, Maxon or Big Ditch, that the predecessors of the defendant in the years 1892 and 1897, or at any other time appropriated 5,000 miners' inches and 200 cubic feet per second of water respectively of the waters of the Salmon River for irrigating said lands, and deny that pursuant to such appropriations, or thereafter by actual diversion, appropriation or user or by means of dams or ditches or canals of sufficient or any size or capacity, that the said defendant or its predecessors in interest diverted said water or any part thereof or commenced the use thereof in bringing said lands under cultivation, and deny that since said time, said predecessors of the defendant as rapidly as conditions and circumstances or means permitted, or otherwise, or at all, with any diligence whatever, carried on the construction of such ditches or the placing of said lands under cultivation, and deny that defendant since becoming the owner of said lands and water rights has continued or is now completing the said use and the placing of said lands under cultivation, as fast as conditions and circumstances permit.

7.

Plaintiffs deny that for the successful irrigation of the lands described in the counter-claim and to produce crops or grasses thereon for cutting or grazing, that it requires a cubic foot per second of water for each fifty acres thereof, or any water whatever.

8.

Plaintiffs deny that the defendant is now or that its predecessors have been in the use and enjoyment of the waters of the said Salmon River and its tributaries, or any of them during each and every irrigation season, or for irrigating the whole extent or any portion of the lands mentioned in paragraph twenty-four of the counter-claim herein, either using for grazing or otherwise from a time long prior to the claim of the plaintiffs herein or from any time prior thereto, and plaintiffs deny that the defendant or its predecessors in interest have in the low season of each or every year, or any year, diverted or used since a date prior to the appropriation of the plaintiffs, or that they have been, or it has been or is entitled to divert or use the whole or any portion of the waters of the said Salmon River, or its tributaries at its lowest canal above what is known as Shoshone Creek, or at any other point, or that it has been or is entitled to have the use of all or any portion of the lands mentioned in paragraph twenty-four of the counter-claim herein or of the waters of any of said streams mentioned in the counter-claim for use thereon for irrigation or other purposes, or to have the beneficial use thereof by any means or methods whatever.

Plaintiffs deny that a large portion or any portion except an inconsiderable portion of the water of the streams described in the counter-claim finds its way back into the channel of the said Salmon River, or that it flows down to the point of plaintiffs' diversion, and deny that the said water finding its way back to the channel of said river, together with other waters reaching the reservoir of the plaintiffs, is sufficient for the proper irrigation of all the lands segregated to the use of the plaintiffs. Plaintiffs deny that they do not conserve or utilize all of the waters flowing down to the said reservoir of the plaintiffs, and deny that they permit a large or any volume of water reaching said reservoir to escape therefrom at any time, or to be wasted.

9.

Plaintiffs deny that the claims and the rights of the plaintiffs herein are inferior to or subject to the rights of the defendant for the irrigation and beneficial use of its land heretofore or now used, cultivated or irrigated, as well as for additional lands in course of reduction to cultivation for which the waters of said streams are claimed by the defendant, or to which the waters of said streams are being actually applied or are proposed to be applied, but on the contrary, plaintiffs allege that their right to the water of said stream is prior and superior to that of the defendant.

Wherefore plaintiffs pray that the amended cross-bill or counter-claim herein be dismissed and that the

defendant take nothing thereby, and pray that plaintiffs be granted all proper relief.

S. H. HAYS,

P. B. CARTER,

Solicitors for Plaintiffs,

Residing at Boise, Idaho.

(Duly verified.)

Endorsed: Filed May 18, 1914.

A. L. Richardson, Clerk.

By E. B. Yarrington, Deputy.

(Title of Court and Cause.)

PROPOSED AMENDMENT TO THE ANSWER.

The Defendant, by leave of the Court first had and obtained, hereby amends its answer herein by adding thereto the following:

For further answer the defendant says that there is a defect of parties herein in that there are numerous persons not parties to this suit in Nevada and Idaho, who have, or claim to have, rights and interests in and to the waters of said Salmon River and its tributaries; that among the persons in Nevada who have, or claim to have, rights and interests in and to said waters are the following: James P. O'Neil, W. T. O'Neil and Richard O'Neil; that among the persons in Idaho who have, or claim to have, rights and interests in and to said waters are the following: Billy A. Vliet, Emile Brown, E. R. Chandler, H. L. Hansen, H. B. Lorain, J. T. Willis, Bryant Willis, S. C. Sexton, O. A. Schnitker, H. E. Prothero, W. L. Howard, Bertha N. Atherton, Peter

O. Atherton, Helen Brown, H. E. Reed, Mary E. Reed, Bonita Brotherton, Phil Hardy, James B. Rice, Henry B. Carr, Lorenzo Graehl, E. J. Rork, Lester E. Joslin, W. A. Beckley, D. C. Workman, Otto Hansen, F. C. Redtke, John Cline, A. J. Gidney, Alice E. Norton, J. D. Sawyers, J. F. Walker and Matilda Loo.

That complete justice cannot be done between plaintiffs and defendants herein and the title to the waters of said streams cannot be adjudicated completely unless all persons claiming interests as aforesaid in and to the subject matter of this litigation are made parties to this suit.

EDWIN SNOW,

C. A. BOYD,

ANDREW HOWAT,

HERBERT R. MACMILLAN,

FRANK K. NEBEKER,

Solicitors for Defendant.

Endorsed: Filed April 20, 1915.

A. L. Richardson, Clerk.

By Pearl E. Zanger, Deputy.

(Title of Court and Cause.)

STATEMENT OF EVIDENCE INTRODUCED
BY THE PARTIES TO SAID CAUSE AND
ALL PROCEEDINGS HAD AT THE TRIAL
THEREOF.

(All exhibits incorporated in printed transcript are appended at the end of this statement of the oral evidence.)

MR. HAYS: If the Court please, we desire to introduce in evidence the articles of agreement between the Secretary of the Interior for and on behalf of the United States, and Frank R. Gooding, Governor, and President of the State Board of Land Commissioners of Idaho, for and on behalf of the State of Idaho, for contracts providing for the segregation and irrigation by the State and ultimate patenting to the State of the lands mentioned in the segregation list No. 14. The list of lands is here omitted, as they are in subsequent papers, and it is agreed between counsel that that list is the list situate in the Townships and Ranges mentioned in the complaint, the total area involved in these articles of agreement being 127,000 acres, approximately.

MR. NEBEKER: We have no objection as to the competency of the proof. We object as immaterial and irrelevant.

THE COURT: The objection will be overruled. It may be understood that you have exceptions to all adverse rulings.

MR. HAYS: We offer in evidence, if the Court please, copy of an agreement between the State of Idaho and the Twin Falls Salmon River Land & Water Company, dated the 30th day of April, 1908, being the contract for the construction of the irrigation works for the lands specified in segregation list No. 14, as well as other lands that might be irrigable from the works; the list of lands is likewise not attached to this contract, being the same as that contained in the previous agreement, and being situated in the

townships and ranges mentioned in the complaint. We will offer them in evidence.

MR. NEBEKER: This is objected to as immaterial and irrelevant.

THE COURT: The same ruling.

MR. HAYS: We ask that the articles of agreement between the United States and the State be marked as Plaintiffs' Exhibit No. 1.

Said document was thereupon marked: *Plaintiffs' Exhibit No. 1.*

MR. HAYS: And that the agreement between the State of Idaho and the Twin Falls Salmon River Land & Water Company, of date April 30, 1908, be marked as Plaintiffs' Exhibit No. 2.

Said document was thereupon marked: *Plaintiffs' Exhibit No. 2.*

MR. HAYS: We offer in evidence application for permit No. 3493, the name of the applicant being John E. Hays, of Twin Falls. The application is numbered 3493, and at the end thereof is endorsed as permit No. 2659. We offer this in evidence.

We also offer in evidence a deed dated January 26, 1912, between John E. Hays and the Twin Falls Salmon River Land & Water Company, purporting to convey his rights under permit 2659.

We also offer in evidence a certificate of the completion of works under permit 2659, being a certificate given by the State Engineer of the State of Idaho.

THE COURT: What is the date of it?

MR. HAYS: Dated May 14, 1912.

We also offer in evidence the bond given under the permit, being a bond dated on the 13th of May, 1907.

THE COURT: These are all offered as Exhibit No. 3?

MR. HAYS: We offer this in evidence and ask that it be marked as Exhibit No. 3, all of these documents being bound together.

Said document was thereupon marked: *Plaintiffs' Exhibit No. 3.*

MR. HAYS: We offer in evidence application for water permit No. 4313, which was ultimately issued as water permit No. 3267, for the appropriation of the waters of Salmon River; also warranty deed from John E. Hays, the appropriator, to the Twin Falls Salmon River Land & Water Company, dated November 19, 1912, purporting to convey under said permit, and a certificate of the completion of the works under said permit No. 3267, issued by the State Engineer of the State of Idaho on the 25th day of January, 1913; also the bond given under said permit, dated January 20, 1908.

Said document was thereupon marked: *Plaintiffs' Exhibit No. 4.*

MR. HAYS: If the Court please, we ask that application No. 4313, which was issued as permit No. 3267; also the warranty deed from John E. Hays to the Twin Falls Salmon River Land & Water Company, the certificate of completion of works under permit 3267, and the bond given on the water permit, all of which are bound up together, be introduced in evidence and marked as Plaintiffs' Exhibit No. 4.

MR. HAYS: I desire to offer in evidence application for permit 7466, which was finally issued as permit 5519, for the diversion of the waters of Salmon River, said permit being taken out by D. C. MacWatters; also a deed dated September 30, 1914, from D. C. MacWatters to the Twin Falls Salmon River Land & Water Company, purporting to convey permit No. 5519; also the bond given in connection with said permit.

Said document was thereupon marked: *Plaintiffs' Exhibit No. 5.*

MR. HAYS: We offer in evidence a form of agreement entered into between the Twin Falls Salmon River Land & Water Company and the purchasers of land under the irrigation project of that Company. This is simply the form of agreement entered into by the settlers, and I believe it may be stipulated that this is the form of agreement that the Carey Act entrymen on said project entered into.

Said document was thereupon marked: *Plaintiffs' Exhibit No. 6.*

E. B. DARLINGTON, a witness duly called and sworn on behalf of plaintiffs, testified as follows:

I am a civil engineer and occupy the position of Chief Engineer and Water Master for the Twin Falls Salmon River Land & Water Company and the Salmon River Canal Company. I am familiar with the lands contained in segregation list No. 14, and said lands are generally known as the lands contained in what is called the Salmon River project.

Plaintiffs' Exhibit No. 7 is a map of the Salmon

River segregation project ; it shows the contract numbers of each contract sold to entrymen, and the route of the canals, the position of the dam, reservoir, and the layout of the system.

Plaintiffs offered Plaintiffs' Exhibit No. 7, to which defendant objected as incompetent, irrelevant and immaterial. Said objection was by the Court overruled.

Mr. Darlington (continuing) :

The project is a storage project, depending for its supply on a large reservoir, which is impounded behind a masonry dam 230 feet high. The water is diverted through a tunnel into the canal system, and there are approximately 250 miles of laterals. The main canal is a channel 60 feet wide on the bottom, with slopes of 2 to 1, with a capacity of about 1,250 second feet. That is divided about ten miles below the dam into two main laterals, each with a capacity of about 500 second feet, what is known as the No. 1 and the No. 2 systems; No. 1 system running to the east of the project, and No. 2 to the west of the project, branching and sub-branching into smaller distributaries until the entire project is served, a project of about between 90,000 and 100,000 acres, served from it.

The storage dam is 450 feet on the top in length, and the thickness of the base is about 110 feet; it is rubble masonry and contains about 150,000 cubic yards of material.

Plaintiffs offered Plaintiffs' Exhibit No. 8, being

a photograph illustrating top, part of back and part of front of the dam.

Mr. Darlington (continuing) :

The tunnel is about 83 feet below the top of the dam and is not quite 150 feet above the bottom of the canyon. Below the mouth of the tunnel the dam acts as a diversion dam. The reservoir is in the bed of Salmon River and is from a quarter of a mile to a mile wide and at maximum high water would extend back about 16 miles. It is a reservoir of more than ordinary depth for its capacity. I do not think I could give the average depth. I have been on the Salmon River project since February, 1909. The dam had been started when I went there; the canal system had not been started. I started the surveys for the canal system and stayed there through construction and the last four years during the operation of the system. I was Assistant Chief Engineer at the time of construction and later operated the system. Last year there were a little over 30,000 acres in actual cultivation. The total acreage of the entries represented by the owners whose land was cultivated was 45,000 acres. There were a little over 73,000 acres represented by contracts sold. The land is not in a solid body. The entire project of 90,000 acres is dotted with farms representing about 30,000 acres with crops. Water was first turned in on the project in 1911, about the 1st of May. General irrigation did not start until in June, 1911. Water was turned on about the 20th of May for testing the project. Three runs were made during the year 1911.

The towns of Hollister, Rogerson, Amsterdam and Berger are located upon the project. A branch line of the Oregon Short Line extends from Twin Falls through the towns of Berger, Hollister and Amsterdam to Rogerson, the southern terminus of the branch. The elevation of the land varies from 5,000 feet on the southern border to about 4,000 on the northern border. Crops are largely grain, alfalfa and other grasses. Three crops of alfalfa are raised in a season. The lands constitute the ordinary sagebrush desert with volcanic ash soil and I regard the water as necessary to produce ordinary agricultural crops. The available capacity of the reservoir is 180,000 acre feet. The total capacity is 220,000 acre feet. There is no other source that I know of from which these lands could be irrigated. The railroad was built during 1910. Construction of the ditch and canal system started in the spring of 1909 and continued into 1911, when it was made ready for operation. The system has been operated during the years 1911, 1912, 1913 and 1914. In 1911 there were about 6,000 acres in crop; in 1912, 16,000 acres; in 1913, 23,000 acres, and in 1914, 30,000 acres. There is considerable land being cleared and put under cultivation this spring that was not in last year; we look for a gain of from 3,000 to 5,000 acres this year. I am familiar with the flow of Salmon River as shown by the records of the company and the geological survey. According to the records of the company the annual flow in 1908 was 121,265 acre feet; in 1909 it was 132,782 acre feet; in 1910 it was 149,-

946 acre feet; in 1911 it was 96,571 acre feet; in 1912 it was 169,888 acre feet; in 1913 it was 108,405 acre feet; in 1914 it was 135,295 acre feet. The measurements were made up to 1910 just above the Salmon River dam; after that they were made about 20 miles above the dam. The measurements do not take into consideration any diversions above the dam. The average annual flow, as shown by the geological survey, is 127,000 acre feet, and as shown by the records of the company, 130,600 acre feet. I have had experience with the distribution of water for irrigation purposes since 1903; have read a good many of the authorities and have done the work itself. I have looked after farming operations on my own account and for others. I think it requires an application of at least an acre foot and a half to the acre for the lands under this canal system.

I am more or less familiar with the lands and canals of the defendant Vineyard Land & Stock Company along the Salmon River. I first inspected these lands in the spring of 1910. I have been there a good many times. These lands are about 25 miles above the dam and extend from the mouth of Shoshone Creek up to a point about 10 miles above Contact.

(Plaintiffs thereupon had a certain blue-print, purporting to be a diagram of the defendant's properties on the Salmon River, marked Plaintiffs' Exhibit No. 11, and the witness located thereon the course of the stream, defendant's ranch known as San Jacinto, including the postoffice and store building, the

entrance to Bore's Nest Canyon, Shoshone Creek, Trout Creek, Jake's Creek and Meadow Creek, and the defendant's Vineyard ranch in Township 44 North, Range 63 East.)

Mr. Darlington (continuing) :

I first visited the Vineyard ranch in October, 1911. It consists of alluvial flats, largely covered with willows; the pastures are grown up to rye grass and cut up with sloughs. It is a typical mountain meadow country. There are probably 200 or 300 acres on the ranch, mostly in section 15, used for wild hay and pasture land; I haven't exact figures of the acreage. It was wild hay meadows, natural sod and pasture land.

Plaintiffs' Exhibit No. 12 is a photograph of the Vineyard field looking northeast from the house in section 15. It is a photograph taken in January, 1912. Plaintiffs' Exhibit No. 13 is a photograph of the Vineyard field, taken in October, 1911, from a point on the west side of section 15, looking northeasterly across Jake's Creek. Plaintiffs' Exhibit No. 14 is a photograph of a brush dam at the head of the old Vineyard ditch. The head of the ditch is in the northeast part of section 16, 44 north, 63 east, and extends easterly and somewhat northerly. The ditch runs off to the foreground and the river flows off through the center of the picture. The picture was taken last week. In 1911 when I first saw the Vineyard ditch it was an old ditch that was taken out of the river by means of a brush dam with no head-works, no regulating device at all. This is indicated

in Exhibit No. 14. It extended easterly to Jake's Creek, picked up the waters of Jake's Creek and continued on down the meadow to a point close to the line between sections 14 and 15. The water has been used from that ditch out on these meadows. The ditch was cut in places and the water flooded out over the meadows into the sloughs. There were no lateral ditches unless there might be a few furrows plowed across the field to help conduct the water across the meadows. I think the area irrigated at that time was between 200 and 300 acres. There was a ditch partially built that was planned to come out of the canyon about a mile above the old ditch. There had to be a tunnel but it was not built at that time. It was about 120 feet long. About 3,000 feet at the upper end of the ditch was not built. Parts of the ditch along near the crossing of Jake's Creek were not built. The ditch on Jake's Creek for about a mile or perhaps a mile and a half was built. On Plaintiffs' Exhibit No. 11 I have marked in red the parts that were built and by a dotted line in red the parts that were not built. The old ditch is marked in green. The new ditch has been completed since my visit in 1911 and extends back from the Vineyard house about two miles into the northwest quarter of section 8. The ditch has been extended from the point where I saw it about three miles further down the river. I have marked on Plaintiffs' Exhibit No. 11 in yellow the point where the ditch ended when I first saw it. There are about 600 additional acres put under the new ditch. When I first saw these tracts there was

a ditch out of the east side of the river through sections 9 and 16 and into section 4, called the Bird's Nest ditch. This is shown on Plaintiffs' Exhibit No. 11. This served the Upper Middle Stack field, which was a hay field and pasture, and was of the same general character as the Vineyard field. There were no distribution ditches, except the coulees, that turned the water out into the sloughs across the pastures and meadows. This ditch was somewhat improved last year but no new land brought under it so far as I know. There were 327 1-2 acres irrigated in the Middle Stack field. This does not include about 135 acres in section 4, in the Upper Middle Stack field. The land was not cultivated, but was wild hay meadow. Plaintiffs' Exhibits No. 15 and No. 16 are photographs of that locality, and show the head of the Bird's Nest ditch. These photographs were taken last week and they show about the same condition as when I first saw the place in the fall of 1911. There are no diversion works, simply a brush dam with a plank across it as at the present time. Perhaps a mile down the ditch there is a waste gate for turning out the extra water. This did not exist when I first saw it. Plaintiffs' Exhibit No. 17 is a photograph that represents the typical meadow at the Middle Stack field in section 27. It was taken on the first of January, 1912, from the top of a hay-stack, looking northeasterly. In 1910 I first crossed the ditch in sections 27 and 34, township 46 north, 64 east. I went up to the San Jacinto ranch in section 14 and crossed the ditch marked in red upon the map

at this point. The ditch had been built to a point about 300 yards below the road in section 13. It is known as the Harrell ditch and is marked in red. It heads in section 34, and the course of it is north-easterly parallel to the river. The end of it is marked in red on this map in section 13. There was a strip of sagebrush land all along the canal until it got up near the head. I don't know what the condition was at that time, but from observations from the road here that was a strip of sagebrush along parallel to the river and then wild hay meadows along the river. There was a ditch on the Bridge ranch at that time. I can't say as to 1910 whether there was any land irrigated in the vicinity of San Jacinto other than as mentioned because I was just making a hurried trip across it. Further to the north in ranges 64 and 65 east, 47 north, there were wild hay meadows and pastures along the river and a large bench still in sagebrush above the river. The Bridge ranch is on Shoshone Creek about two miles above the mouth. Shoshone Creek empties into the Salmon in section 23. There were about 160 acres cultivated; that is, it was in wild hay. In 1911 most of the land on the San Jacinto ranch on the east side of the river and between the river and the Harrell ditch was still in sagebrush. There were two branches of the river at San Jacinto and the part between the two branches is known as the island. A considerable part of the island was in wild hay and pasture, and there was a stretch all along the Harrell ditch in sagebrush. Besides the Harrell ditch there was the Warm

Springs ditch, shown on the map. It heads in the southeastern corner of section 22 in a spring, and flows northerly. It was about two and a half miles long. It irrigated about 150 acres, I think. It is hard to tell just what was under each ditch because they intermingle more or less. The total area irrigated from the Salmon River, in all of the Salmon River ditches, in 1911, was 2,265 acres. I can't tell how much land was irrigated from the lower Vineyard ditch and Jake's Creek. Some land had been irrigated from the Roland slough, a little strip from the Harrell ditch, some land from the San Jacinto ditch that comes out of the river just above the Warm Springs, some from the Warm Springs ditch, some from the Fisher ditch, as shown on the map. A ditch also comes out in the Bore's Nest field. They are all from the Salmon River except the Warm Springs ditch. The map contains the areas that are irrigated from each canal. On the Vineyard ranch there are 305 acres of hay, irrigated from Salmon River, and 41 acres of pasture flooded by high water; 124 acres irrigated from Jake's Creek, and in addition to that 18.3 acres of pasture. From the Bird's Nest ditch there was 327½ acres in the Upper Middle Stack field; 135 acres of hay, of that, was in the Upper Middle Stack pasture, and 327½ acres of pasture. On the east side of the river there was 57.6 acres of pasture irrigated from sloughs. From the Harrell ditch 177 acres of hay and 109 acres of pasture; also a little block of about 18 acres of oats. On the west side of the river from the Warm Springs

and San Jacinto ditches 21 acres of alfalfa; another field containing 119 acres of alfalfa, 21 acres of wheat, and that water wasted down on what is known as the Bore's Nest field. There is no way of knowing what part of it was irrigated from that water and what part from the Fisher ditch. Waste water from those ditches irrigated 30 acres of hay, 9 acres of oats, another field of 26 acres of hay, and another field of 35 acres of hay. When I speak of hay I mean wild native hay. When I speak of meadow I mean natural grass pasture and not the hay that is cut for forage. The two pieces of alfalfa and two of oats were the only cultivated crops along the Salmon River that I know of. The pastures are the flats along the river that are overgrown with willows and rye grass and cut up with sloughs. They are not cut for hay. They are just natural fields not used for anything but to pasture stock. They were irrigated largely, if at all, from inundation. The flood waters of the river rose up high enough to come up over the flats; not systematically irrigated. The total area watered from Salmon River was 2,265 acres; from Shoshone Creek, 160 acres; from Jake's Creek, 143 acres. That does not include the pastures that were flooded from the creeks. It includes pastures and hay fields that were irrigated from water diverted from the river by means of ditches, and sometimes simply by turning it into sloughs, or by damming up the river and spreading it out in the natural sloughs and running it out on the meadows in that way. During the year 1911 the Harrell ditch was built to a

point probably a mile and a half further north and somewhat east into section 7, and since that time it has been extended almost down to Shoshone Creek, to a point marked on the plat in a green line. About 5,000 acres additional area has been brought under ditch by new construction since 1911. In 1914, according to the report made by a representative of the Geological Survey, the total diversions upon the ranches of the Vineyard Company amounted to 17,206 acre feet. This water was used on all the meadows that I have described along the river, and on 1,700 acres of new land under this ditch extension.

(Plaintiff then offered Plaintiffs' Exhibit No. 11, and the same was received in evidence. On account of the size and contents of this exhibit it is not practicable to set forth the same here. By stipulation of the parties and pursuant to an order of the presiding judge, this and other original exhibits and papers not capable of being conveniently set forth herein, are transmitted separately to the appellate court.)

Plaintiffs' Exhibit No. 18 was thereupon offered and received in evidence.

Mr. Darlington (continuing) :

The lands colored in red on Plaintiffs' Exhibit No. 18 are wild hay lands; those colored in orange are pasture lands that have been irrigated; those colored in green have been newly cultivated or cleared. This piece of about 30 acres on the Vineyard has just recently been cleared. About 1700 acres along east of the San Jacinto is what is known as the Trout Creek bottom.

Plaintiffs' Exhibit No. 19 was thereupon offered in evidence.

Mr. Darlington (continuing) :

Plaintiffs' Exhibit No. 19 is a picture of the head-works of the Harrell ditch as it existed in 1911. At that time there were no head-works, simply a brush, rock and manure dam for turning the water out into the ditch. There was a waste gate about 500 feet below the head-works for turning the water back into the river.

Plaintiffs' Exhibit No. 20 (also offered in evidence) is a photograph of the Bore's Nest field and illustrates the type of checks used for spreading the water out on the meadows; just an earth and manure dam to back up the water and spread it out over the meadow. The photograph was taken in the Bore's Nest field in section 26, 64 east, 47 north, in December, 1911. Plaintiffs' Exhibit No. 19 was taken in October, 1911.

Plaintiffs' Exhibit No. 21 (also offered in evidence) is a photograph representing the store and camp buildings at San Jacinto, the headquarters ranch of the Vineyard Land & Stock Company, in section 14, 64 east and 46 north. Plaintiffs' Exhibit No. 22 (also offered in evidence) is a photograph representing the Warm Springs ditch and a brush and manure dam for turning the water out into the San Jacinto ditch. Those two ditches run parallel and the water is turned from one into the other. The scene of it would be shown on the map in the south-east quarter of section 22, at the head of the Warm

Springs ditch. This photograph was taken in December, 1911, or January, 1912, and the picture of San Jacinto, including the store, was taken at the same time. Plaintiffs' Exhibit No. 23 (also offered in evidence) is a photograph of the Bird's Nest ditch that comes out of the river in section 21, 45 north, 64 east, and shows the general type of the land that is surveyed and also how the water was taken out through a cut in the bank. Plaintiffs' Exhibit No. 24 (also offered in evidence) is a photograph of the head of the Fisher ditch, which heads in section 14, 46 north, 64 east, showing the type of brush, rock and pole dam, and the willow lands through which the ditch runs. It was taken in December, 1911. Plaintiffs' Exhibit No. 23 was taken in the summer of 1912. Plaintiffs' Exhibit No. 25 (also offered in evidence) is a photograph of the pole and brush dam at the head of Shoshone Creek ditch, heading in section 17, 47 north, 65 east, and was taken last week. Plaintiffs' Exhibit No. 26 (also offered in evidence) is a photograph representing the dam and head of the Shoshone Creek ditch; just an open diversion without any controlling works, located in section 17, 47 north, 65 east. It was taken last week. The elevation at the Vineyard is about 5,600 feet; at the Bridge ranch at about 5,400 feet. The country along the river is an alluvial flat, shown by the colors, except the green color, on Exhibit 18. Alluvial soil on top of gravel. Lands marked in green are sagebrush lands; rather heavy soil, somewhat gravelly. The native vegetation on the river bottoms is mostly wil-

lows, bunch grass, rye grass. Rye grass is a coarse grass that grows tall and looks a good deal like grain and rye; it grows in bunches; some little greasewood. A good deal of the bottom land shows alkali; not much vegetation on it. I should think there are two or three hundred acres that are not growing much vegetation on account of alkali. The only vegetation growing on the bench lands is sagebrush, with the exception of a little wild grass. The river bottom is practically level and varies in width, and there is usually a rather abrupt rise out of the meadows. The rise in the country north and east of the San Jacinto in the Trout Creek bottoms is probably 20 to 40 feet to another flat or slightly sloping bench covered with sagebrush; that is the land the new ditch serves. The river from the Vineyard ranch to the Upper Middle Stack field, or what is known as the head of the Bird's Nest ditch, is in rather a narrow canyon; not much width to the river bottom. Above the Vineyard ranch the river comes out of a box-canyon. The only crops raised there that I know of are grain and alfalfa. Apparently last year was the first year any grain was threshed; most of the grain has been cut for hay. A very little grain was threshed in 1913. Apparently they made one or perhaps two cuttings of alfalfa; I am not sure of that. They cut alfalfa three times on the Salmon River project. In my opinion the country is too cold for alfalfa on the defendant's lands. The season is too short to cut three crops. This is a mountain valley and the country slopes quite abruptly from the

river bottoms, except in the case of the Trout Creek valley, north and east of San Jacinto; that is a level flat for from two to two and one-half miles away from the river and then becomes hilly and slopes up pretty abruptly again. The river has cut its way through the mountains there and left a deeply incised valley. The mining town of Contact lies on the mountain side in about section 19, and the mountains are probably about eight or nine thousand feet high within three miles of the river.

CROSS EXAMINATION:

I am not a professional graduate in engineering; I took a course in science and mathematics in the Normal School in Pennsylvania. I am a member of the Idaho Engineering Society. I went to the Salmon River project in 1909 as locating engineer, and that summer was appointed Assistant Chief Engineer, in charge of locations and construction. Mr. C. B. Smith was Chief Engineer. I made no observations on the Salmon River in Nevada prior to 1909. As to ascertaining the quantity of land under cultivation I did not depend at all on my own observations. I think about 2.14 acre feet per acre was used in 1912. I think that is more than is absolutely required with the best use of water with proper economy. One and a half acre feet per acre affords a sufficient amount of water for maturing crops in that vicinity. The total amount of water taken out on the lands in 1911 was 22,840 acre feet. Only about fifty acre feet was diverted from the reservoir in 1911 after the irrigation season. The total amount that flowed into the

reservoir during the year 1911 was 85,000 acre feet between the first of January and the first of October. About 60,000 acre feet was diverted and used for irrigation purposes in 1912; in 1913 there was 75,000 acre feet used, there being an available supply of 27,110 acre feet additional in the reservoir. The system was entirely completed for 90,000 acres. After using 103,000 acre feet, in 1914 16,500 acre feet remained at the end of the season. There is a little water flowing in the channel immediately below the dam. When I measured it in 1912 there was about four and a half second feet. There is a gauge in the stream about half a mile below the dam to indicate whether there is more or less flowing. There has been no systematic record kept of it. I have never computed the amount of water that flows there. I think the flow increased to double the amount shown by the measurement I made in 1912. I estimated it at 9 or 10 second feet. In 1911, 1912 and 1913 my assistants reported that 30 second feet was wasting into the Salmon River from another irrigation project, as shown by observations about twenty-five miles below the dam.

Q. Did you ever make any observations which would enable you to determine whether the water flowing below the dam increased or diminished as the level of the water in the reservoir raised or lowered?

THE COURT: What is the purpose of this, Mr. Nebeker?

MR. NEBEKER: To show the wastage of water from this dam.

THE COURT: Do you intend to show that it is wasted?

MR. NEBEKER: Yes.

THE COURT: That is, that it is due to carelessness, to careless construction?

MR. NEBEKER: Yes, I think it will even go to that, perhaps, but at any rate it will be water which we will contend, your Honor, that they must be charged with, and not us, in this system.

THE COURT: I say, do you intend to show that the loss of water which is found in the channel below the dam is due to the faulty construction on the part of the plaintiff company?

MR. NEBEKER: I don't know that we will show that.

THE COURT: Unless you are going to show that, I will not permit you to pursue that line of examination further. It is taking up time for no good purpose that I can see. It is generally well known that there is some seepage and some leakage through almost any diversion dam. Now, if this dam is constructed in a reasonable way, with reasonable care, that is as much as can be required.

Cross Examination (continuing):

The only observations I made on the Hubbard ranch were from riding by it. The areas given in my testimony of land under cultivation do not include the Hubbard ranch. It is south of the Vineyard ranch, up Jake's Creek. I saw ditches and water being used on the Hubbard ranch. In the 2,265 acres is included all of the lands that I ob-

served had been irrigated systematically. That number of acres is all of the land that in 1911 or 1912 produced crops as a result of artificial irrigation. I discovered dams up and down the river which had been used to divert the water out over the land on either side. In the acreage I gave I did not include lands, if there were any such, over which water was flooded by means of dams across the natural channel. The point on the Salmon River commonly known as the Bore's Nest is immediately below the confluence of Shoshone Creek and Salmon River. The measuring station of the official connected with the Geological Survey is about two or three hundred feet down in the canyon. The water enters a sort of a box-canyon at a point just a little above the measuring station. Between the dam and Shoshone Creek the canyon is a mile wide in some places. From the Bore's Nest to the Vineyard ranch is about twenty miles, I guess; it may be a little more than that. The bottom land between those points is on an average about one mile in width, on which is grown wild hay and pasture grass. Between those points I made no examination with the view of determining how many artificial dams were placed in the stream for the purpose of diverting water out over the level bottoms. I confined my observations to artificial ditches. When I speak of irrigation I mean such as took place from these artificial ditches. I do not know how much irrigation has taken place as a result of putting in dams into the streams and spreading out the water in that way. I could not give an idea of the total

acreage upon which existed pasture and hay land from the Vineyard ranch down to the Bore's Nest without counting it up on the map. I did not explore Jake's Creek above the Vineyard ranch. I think that tributary is about 5 miles long. I have seen it by traveling along it up past the Hubbard ranch. I believe that ranch is irrigated from Jake's Creek and its tributaries. I am acquainted with only the lower end of Trout Creek. I do not know personally whether any lands are cultivated or crops grown on Trout Creek some distance back from the river. Perhaps about 10 miles above the Bridge ranch there are other lands irrigated on Shoshone Creek. There is a ranch belonging to the Vineyard Land & Stock Company at the mouth of Big Creek and one on Hot Creek. I did not take the areas of lands irrigated from those sources. I would not say that cereals would not grow on the lands of the defendant company in Nevada. I guess good wheat and oats can be grown there. I think two crops of alfalfa can be grown there.

RE-DIRECT EXAMINATION:

The water in the channel below the dam went up for a time in 1912 and then began to diminish. It went up to about 9 or 10 second feet. It has been gradually going down ever since that, according to the gauge height. Water seems to come out of the canyon walls in the form of springs at numerous places below the dam. There is water coming into the channel from Antelope Springs about three miles below the dam and a great deal of waste water comes

in from the south side Twin Falls canal. There are several old ranches near the mouth of the river and they are using water. The observations I made down on that part of the stream were to determine whether those ranches still had sufficient water. They were there before the dam was built. The total loss from the reservoir by seepage and evaporation in 1911 was 52,070 acre feet; total loss in 1912 was 64,181 acre feet; total loss in 1913 was 46,314 acre feet, and the total loss in 1914 was 38,032 acre feet. The loss in depth per mean submerged area in 1911 was 45 feet; in 1912, $34\frac{1}{2}$ feet; 1913, 23.7 feet; 1914, 19.5 feet. From experience up to date, I think we might deduce that the loss will eventually decrease to about 10 feet in depth on the mean submerged area. This would be about fifteen per cent. of the mean run-off to date. In 1914 the loss in the canal system was twenty-seven and three-tenths per cent. of the amount diverted; in 1913 the loss was thirty-two per cent. I have made deductions in the same way through experience and consider that the loss will reduce to about fifteen per cent. of the amount diverted. The run-off is a great deal less this year than in any other year. It is less than half as much this year than it was last year or previous years during the same period. I should say that the outlook for the present year is for an insufficient supply. If the irrigable area under the system were demanding water and was in cultivation the water supply would be insufficient in the extreme. I am basing my answer on a duty of water of one and a half acre feet per acre. On that basis I don't

think we have ever had a sufficient supply for 90,000 acres. In 1912 the number of users was 296; in 1913, 365; in 1914, 405. Approximately 1,800 contracts have been issued. The first years of irrigation demand more water; the land is dryer and the sagebrush land is in a very dry state. My duties include traveling over the project a great deal; out in the field half of the time at least visiting farms and inspecting the ditches, communicating with the men, handling all kinds of repair work and looking over agricultural conditions, besides the work of receiving reports in the office and summarizing records. I believe I can check up pretty closely on the reports sent to me by the ditch riders. I believe the figures I gave yesterday for the number of acres irrigated in 1911, 1912, 1913 and 1914 are correct. In 1911 we used all the water that was available; in 1912 we carried over for the next year 43,500 acre feet; in 1913 we carried over for the following year 27,500 acre feet; in 1914, 16,500 acre feet. We drew on the reserve of 1912 for two years. In going over the lands of the Vineyard Land & Stock Company I reached the river at convenient points and inspected the conditions. At intermediate points the river is overgrown with willows badly and it is practically impossible to get along. I followed both the river and the road. The examination of my assistant, Mr. Stocking, was more thorough than that. I don't believe I found any dams being used for irrigation purposes. If dams had been there, they had gone out. Those brush and manure dams wash out every

year. I considered everything that looked like a diversion structure at all.

Plaintiffs' Exhibit No. 27 (also offered in evidence) is a photograph of the Vineyard ranch from a point on Jake's Creek looking north. It was taken in 1911. The buildings shown on the photograph are the construction camp on the Vineyard ranch, taken during the construction of the new ditch. At the Vineyard ranch the buildings consist of a log house and corrals. These are all the improvements with the exception of the meadow and the fencing. Plaintiffs' Exhibit No. 28 (also offered in evidence) is a picture of the San Jacinto ranch from a point on the Warm Springs ditch, looking across the alfalfa field, looking northeasterly. It was taken by me in January, 1912. The improvements on the San Jacinto ranch consist of a store building, blacksmith shop, a couple of log buildings, headquarters for the farmers, headquarters for the cowboys, and some new cottages. Plaintiffs' Exhibit No. 29 (also offered in evidence) is a photograph of the Salmon River valley, looking south from the Bore's Nest canyon. It is the north end of the property of the Vineyard Land & Stock Company. The mountains that appear in the distance are a little southeast of the San Jacinto ranch and known as Middle Stack Mountain. The picture was taken by Mr. Horn in 1909 and is a very good presentation of the condition of the country. Plaintiffs' Exhibit No. 30 (also offered in evidence) is a photograph of the Middle Stack Mountain and the abrupt slope out of the val-

ley; taken from the head of the Harrell ditch about four miles south of the San Jacinto buildings. It was taken by me last week. The camera was directed east from the head of the Harrell ditch. The river is at the point where the picture was taken. Besides the improvements on the defendant's lands along the Salmon River I have referred to, there are some log buildings, houses and barns, on what is known as the Bridge ranch. There is a cabin on the Bore's Nest field. There is what is known as the Reed cabin on the Bird's Nest field.

RE-CROSS EXAMINATION:

My conclusion that the amount of evaporation and seepage will diminish as time goes on is based upon experience up to date and my own judgment. It has decreased from 45 feet to 19½ feet in depth on the reservoir. I don't know of any other factors taken into consideration by me. I think the interstices in the rocks are gradually puddling up; the turbidity of the water that is brought down in the spring is closing up the fissures and so on; also that the ground water, the storage of the rock itself, is filled up. I mean the saturation of the rock and soil. I don't think that in the future there will be any less evaporation than at present. I think there is not over five per cent. of the reservoir that is walled in by vertical cliffs; probably fifty per cent. of it is talus from the cliff, more or less filled with soil and vegetable matter, and the balance is sloping ground. The cliffs are lava rock with cleavage lines that are both vertical and horizontal. There are two formations

of lava. I think that water has been escaping through those lines or cleavages to some extent. I think that about ten second feet is all that I know of that escaped from the reservoir through the cleavage lines and then came into the canyon below. I don't think you could say that there is any water flowing directly through the dam; there is a little moisture that appears on the back of the dam. I don't think that the stream of water at the end comes through the dam. I think it comes around through the rock. It is almost at the point of contact of the cement and the country rock. I don't think there is over three or four miners' inches at the present time. There was a little at each end of the dam. The larger stream at the present time is on the east end. I have never made any measurements of evaporation from the reservoir and I haven't any direct data. The total surface of the reservoir in high water in about 3,000 acres. No experiments, to my knowledge, have been made in that vicinity for determining what the evaporation is on surfaces of that kind. The only experiments that I know of are from field tanks at Twin Falls and Gooding, made I think by Mr. Welch, Mr. Bark and Mr. Nelson, representatives of the Agricultural Department. My recollection is that they were taken for a series of months in the summer and there was about 33 inches during the summer months. I can't recall now what period of time they extended over. I think there were all of the atmospheric agencies that cause evaporation, except perhaps the influence of the wind, which is a very im-

portant factor in evaporation. I hardly think it is the most important factor in that section of the country. In a sheltered canyon like Salmon River the wind wouldn't have so much influence as elsewhere. My opinion was that the evaporation loss was about 54 inches per year on the reservoir surface. In arriving at that conclusion I did not make allowances for the action of the wind on account of the depth of the water in the reservoir, which would counteract the influence that the wind would have. The water surface at the maximum capacity reached since the construction of the dam is approximately 2,400 acres.

A. E. ROBINSON, a witness duly called and sworn on behalf of plaintiffs, testified as follows:

I have been engaged in business as a civil engineer for twelve years; the past four years in irrigation engineering; two years as State Engineer of Idaho, with general supervision on behalf of the state of all Carey Act enterprises and a great many other private enterprises. Since 1912 I have been engaged as consulting engineer on irrigation engineering work, for a year and a half of which time I was Receiver of the Murphy Land & Irrigation Company in this state. I have been engaged part of the time as consulting engineer for the Salmon River Settlers' Association, in which connection I have made a good many examinations of this project. During 1911 and 1912 I made frequent trips to the project. In 1912 I was on the project two or three times, I don't remember which. Since that time I have not seen it until the fall of 1914. The use of water by the set-

tlers for a new project has been economical, careful and without unnecessary waste. One and one-half acre feet is a high duty of water and it requires the most careful husbandry. I have made an investigation as to the condition of the canyon and the water coming out of and around the vicinity of the dam. On the four or five trips I made to the dam in 1911 and 1912 and the one in the fall of 1914, I observed a flow in the river below the dam. I was interested because I knew that the reservoir was losing water through the lava rock formation, and we wished to determine whether the water returned to the canyon again after it was lost or whether it went some other place. For a considerable distance below the dam there was practically no return water. About a mile or perhaps about a half a mile below the dam there were little springs in the bed of the river and the water flowing from them increased as we went down the canyon. There is nothing to indicate that the flow from these springs was in any way connected with the water in the reservoir. For some time after the dam was built there were slight evidences of water seeping through the dam in very small quantities, but not sufficient to flow down the surface as far as the bottom of the dam; it would evaporate before it would get that far. At the east end of the dam at the time I made my first visit there was a fissure in the lava rock through which there was a stream of six or eight miners' inches flowing. This was afterwards plugged by a concrete plug placed in the fissure. On the west end of the dam, near the point of

contact between the dam and the canyon wall there was a stream of water which at first glance to a casual observer would appear to be a very serious thing. It carried only four or five miners' inches and was so slight that it was negligible.

CROSS EXAMINATION:

My investigations did not extend more than a mile below the dam, probably not over half a mile. There is quite an accumulation of debris right at the toe of the dam, and extending down the canyon for a distance of perhaps two hundred feet. Below that the water appears. It could be very possible that the water in the canyon seeps through the lava rock and follows its way around through the fissures into the channel below. I have no knowledge of the existence or non-existence of springs at that point before the dam was constructed. There are no natural streams of water in that vicinity. The nearest tributary is about six or eight miles up above. The water in that stream flows only during the spring season. I never measured the water below the dam, nor did I see it measured. In the summer of 1912 was the last time I was at the place below the dam. It appeared to be about the same in 1912 as in 1911. I know of no other reservoir where the formation is similar to this. There would be a considerable quantity of water at first flow through the seams and either come back into the channel or be entirely lost. The rock walls of the canyon about that water line have been drying out for a great many years. Ever since the canyon was formed they have not been wetted. The

cracks which are in lava rock which contain any kind of clay material at all, and there are a great many cracks of that kind in lava walls, have been dried and the clay contents have shrunk, so that with the first application of water there would be a considerable loss through the fissures. When the clay would become thoroughly soaked it would expand and fill the fissures and cause the loss to cease at that point. When the water would recede it would dry out to a slight extent, but not to the same extent as before wetted. Between irrigation seasons in the body of the rock clay would not dry out to the same extent as it would if it had a great many years in which to dry. The natural expectation would be that that reservoir would gradually improve, both from the process of the swelling of the clay in these fissures and from the natural silting and puddling which takes place in all reservoirs. These clay plugs which exist in the fissures I have observed in the tunnel leading from the reservoir. There are very few vertical cracks, but they contain clay too. I can't answer whether the clay is equally distributed, because the lava rock in the tunnel, when you get beyond the surface, is radically different from what it is on the outside. The vertical fissures don't show up in the tunnel. All rocks break up into what is called joint planes, which extend vertically as well as horizontally. The joint planes of lava rock, limestone or any other formation of that character, extend entirely through the beds. The joint planes do not necessarily constitute openings. Generally joint

planes furnish a means for the flow of water only on the surface of the rock. I don't think that the pressure of the water in the dam would have anything to do with the question as to whether those fissures would or would not plug up. At the bottom of the reservoir the pressure would be seventy-five pounds to the square inch, assuming a depth of 200 feet; the pressure is forty-two hundredths of a pound to a foot of depth. I know that some of the joint planes are filled with clay and am not drawing upon my imagination. If the joint planes and seams were not filled with clay, you would find springs of considerable magnitude immediately below the dam, or else within a short distance below. The seams are either not there or else if they are there they are filled or partially filled with clay. I have never made any calculation for the purpose of determining how much of the total loss is made up of seepage and how much by evaporation. The evaporation is generally constant from year to year. I have never formed any conclusion as to the total amount of seepage which takes place in the reservoir, because I have not studied the question from that angle.

RE-DIRECT EXAMINATION:

The tunnels in which I have made observations are the diversion tunnels from the reservoir, about 90 feet above the bottom of the canyon. The first one has a length of about 1200 feet and extends through the canyon walls from the reservoir to a small open cut. The second tunnel is about 300 feet back from the canyon wall. In the tunnels and the open cut be-

tween the tunnels the lava rock was generally solid and firm, and divided into beds. The beds in places showed openings, filled or partially filled with clay, but no vertical openings. The only open joints were between the beds, in which respect the rock in the interior of the tunnels was different from the surface rock. On the surface the natural appearance tends to split the rock along these cleavage joints and give it the appearance of being broken by vertical fissures, but that is not true when you get into the solid material. The construction work of plaintiffs' dam is first class. I have visited the property of the Vineyard Land & Stock Company. I can only describe it as far back as Contact. At Contact the Salmon River flows through a narrow canyon with steep, abrupt sides. The canyon opens up in the vicinity of San Jacinto and forms a basin which extends from San Jacinto down to Shoshone Creek. North of Shoshone Creek the country is very rough and mountainous, consisting of rock lava flows. On the west, east and south the country is also mountainous, and the bottoms of these canyons are narrow mountain meadows. The bottom lands and the lands along the river and creeks are natural hay land, grown up with wild hay and the profuse growth of willows such as is typical of these mountain valleys. The land gives the impression of being swampy. There has been very little improvement of any of the land in that section. The grasses which grow there are natural grasses; no attempt has been made at cultivation or planting, just simply the wild growth which needed

no planting. About the only thing I observed about the Harrell ditch was the character of the construction of it. It attracted my attention on account of the unfinished appearance and the rough spoil banks on the sides of the ditch and the evident haste with which it had been constructed.

RE-CROSS EXAMINATION:

The only visit I ever made to that part of the country between Contact and the upper end of the box-canyon through which the Salmon river flows was in September, 1914. I spent part of one day going over it. It is probably twelve miles—fifteen miles from Shoshone creek to Contact by road. That made a trip that day of thirty miles. We left Hollister in the morning by automobile and made the trip all the way in an automobile, except where we got out and walked. I was not over on the west side where the alfalfa was planted. The vegetation that I saw consisted of natural, wild hay, such as is seen in mountain valleys of that character, and I presume is produced only by irrigation over the surface. The country was not any different from what I expected of the place where natural meadows are irrigated. Hay had been produced and had been cut at that time. The Harrell ditch below the lane appeared to be new construction work, and above the lane it appeared to be an older ditch. Immediately below the lane it was pretty difficult for me to tell whether it was as new as that portion further down.

F. C. HORN, a witness duly called and sworn on behalf of plaintiffs, testified as follows:

DIRECT EXAMINATION:

I am a civil engineer and have been engaged in business thirty-four years. I had entire charge of construction of the Salmon River dam between July 1st, 1908, and May 15, 1911. The work was carried on continuously, night and day, except for a period during the winter of 1910 and 1911, when on account of the inclement weather for a short time we ceased all operations. In round figures there is about 149,000 cubic yards in the concrete monolith. The total length of the concrete tunnels is 3,600 feet. The sectional area as I remember it was about 125 square feet.

J. B. STOCKING, a witness called and sworn on behalf of plaintiffs, testified as follows:

DIRECT EXAMINATION:

I am a civil engineer and have been engaged as such about ten years. In December, 1911, and January, 1912, I surveyed Shoshone Creek and Salmon River and all the lands watered by the Vineyard Land & Stock Company from Salmon River, Shoshone Creek, Jake's Creek, and San Jacinto. The area of the land of the defendant company that was irrigated is something better than 2,600 acres; 2,265 acres from Salmon River; 160 acres from Shoshone Creek, and 142 acres from Jake's Creek. There was about 414 acres of wild hay irrigated along the north end of the Salmon in section 2, 46, 64; I think a little of it in sections 2, 11 and 35. This is low lying land along the river. The river flows on both sides of it and it is covered with willows and wild grass.

I never found any irrigating ditches on it. There is an area of 1,174 acres south of this wild land in sections 11 and 23, and a little in 26, township 46 north, range 64 east. This is grown up with sagebrush and wild rye grass and willows and has never been irrigated. There is forty acres on the north in section 11, 44, 63, and forty-three acres on the west up towards the head of the old Vineyard ditch; that is in sagebrush. The other forty that I mentioned in the Vineyard ranch is in sagebrush and rabbit-brush and a little bit of rye grass.

CROSS EXAMINATION:

Without looking through it I did not take it for granted that there had been no irrigation where I saw sagebrush and rabbit-brush. I saw some toward the Upper Middle Stack that was doubtful, and I classed it as irrigated because there was a little wild grass growing down by the edge of the river. I didn't see any large areas upon which there was brush of that character that I would call irrigated. There was a little under the Harrell ditch, but I saw no signs of it being irrigated. With the exception that I have mentioned I have classed all lands on which I saw sagebrush or rabbit-brush as not irrigated, but I would say that on this map, Exhibit No. 11, there is considerable of that land that I did not believe had been irrigated. I made an actual survey of the lands that had been flooded from irrigation ditches. I had two assistants, besides a driver, and spent about five weeks in December and January. I was never there when the water was being used

for irrigation purposes. I formed my conclusions that the lands that did not come under some ditch were not irrigated and I also made inquiries from people whom I knew whether or not water had been used. Wherever I found any evidence of dams I included the land as being irrigated that way. I found a brush dam at the head of the Fisher ditch; one at the head of the Harrell ditch and one at the head of the San Jacinto ditch. I saw no dams except these. I did not include any lands as irrigable where I saw no dams or old ditches. I included all meadow lands and all the pastures that could only grow as a result of irrigation. I am prepared to say that the total irrigation from Salmon River is 2,265 acres. This does not include the Hubbard ranch, nor the lands irrigated from Jake's Creek. I have never seen any irrigation of these lands by means of temporary dams put across the natural channels and sloughs and swales that extend therefrom. A few days ago I was there when they were irrigating on the west side of the river. That was the only time I have been there when they were irrigating.

RE-DIRECT EXAMINATION:

There was very little snow on the ground when I was there and that was only in places, so there was no trouble in seeing the ground.

RE-CROSS EXAMINATION:

There was no grass growing, but you could see where it had been. I would say the country had been pastured; cattle had been turned out; they were also feeding hay. The cattle were wandering around along the river and through the fields.

It was thereupon stipulated that the lands on the Salmon River project were thrown open for entry June 1st, 1908, and that entries in excess of 50,000 acres were made at that time.

PLAINTIFFS REST.

Defendants thereupon introduced Defendants' Exhibit No. 1, and it was stipulated and agreed that the areas included within the red lines on the exhibit, subject to later attack on examination of defendant's abstracts, were and are the lands of the defendant, and that the water shed between Salmon River and Goose Creek was located approximately as shown by the blue lines on said exhibit.

Defendant offered in evidence Defendant's Exhibit No. 2, and Defendant's Exhibit No. 3.

Plaintiffs objected to the introduction of each of said exhibits on the ground that there did not appear to be any statute in the State of Nevada, or any law, under which such notices could be filed, and that no right to the use of the waters of Salmon River or its tributaries could be obtained by the filing of the notices or documents offered as exhibits 2 and 3.

Sections 425-428, Compiled Laws of Nevada for the years 1861-1900, were read to the Court.

The exhibits were received in evidence by the Court for the sole purpose of showing an affirmative act in the way of initiating water rights at the date of the respective exhibits, in the same way that any other fact, as the making of a survey, might be taken as evidence of intention to appropriate water at that time, but said exhibits were not to be received for

any other purpose or to be regarded as having any other legal effect.

E. C. McCLELLAN, called and duly sworn as a witness on behalf of defendant, testified as follows:

DIRECT EXAMINATION:

I am fifty-seven years of age. I have resided at Elko, Nevada, continuously since 1886. My work has been mostly in northeastern Nevada, some in Idaho, Utah, California and New Mexico. I became familiar with the methods of irrigation in northeastern Nevada and in Nevada generally. Wherever there is water to irrigate the methods are similar throughout the state. My first work in connection with the defendant's lands in Elko County, Nevada, along the Salmon River, consisted of selecting the lands for Jasper Harrell. I commenced in 1881, and from that time for a greater part of a number of years since then I have done more or less work in the valley. I have been familiar with the San Jacinto and Bridge ranches since 1880. I have been on the Vineyard ranch twenty years out of the number since 1880, several times a year. I am familiar with all of the ranches in that section, or what is called the old Sparks-Harrell range. These ranches formerly belonged to the Sparks-Harrell Company. When I first went into that part of the country there were no surveys. There were only possessory or squatters' titles. I went there in 1880 to sectionize the country under Government contract. I sectionized it, commencing in Salmon River valley at the summit of the divide between Thousand Springs and Salmon River,

and extended north to the state line. I am not very well acquainted with the tributaries of the Salmon River west of the Sparks-Harrell range. I have been over there a few times, but not to make any surveys. The Salmon River proper commences where the principal streams come together, perhaps ten miles northwesterly from the Vineyard ranch, and the length of the valley itself would be in the neighborhood of thirty-five miles. The principal tributaries commencing on the north and east are Shoshone Creek, Cow Creek, Trout Creek, Nall Creek, Dry Creek and Jake's Creek. Above this range the only ones I have the names of are Sun Creek, Canyon Creek, Cottonwood Creek and North Fork. There are others, but I don't know their names. These tributaries all come into the Salmon River south of the state line. I first went over there for Jasper Harrell and selected land on the Vineyard ranch and down into the valley now called San Jacinto. I selected nearly 4,000 acres at that time. Jasper Harrell was succeeded by Sparks & Tinnin, a partnership, in the fall of 1883. By 1883 about 3,200 acres had passed into private ownership. Sparks & Tinnin transferred the lands to the Sparks-Harrell Company, who held them up to the time of the acquisition of title by the defendant. In 1883, 1884, 1885 and 1886 I selected land for the Sparks-Harrell Company, surveying all over Salmon River valley and on Goose Creek and on Thousand Springs Creek. I think I selected every acre, with the exception of eighty acres on Big Goose Creek. I would rather not try to state the total acreage owned

by the Sparks-Harrell Company, but I think it would run up into the neighborhood of 50,000 acres.

My first observations or work in connection with irrigation matters in that vicinity began in 1886. It consisted principally in seeing that the water was turned out into the river valley in the spring, and in the fall I laid out and had constructed the upper Warm Springs ditch. I commenced again in 1893 and for a few years after that I was employed in laying out ditch lines and canal systems all over their range.

Two maps were thereupon marked for identification as Defendant's Exhibits No. 4 and No. 5.

Mr. McClelland (continuing) :

I made the map marked for identification as Defendant's Exhibit No. 4, from a survey made by me in 1889. The lines on the exhibit are correctly placed from the survey and notes made by me at that time. Defendant's Exhibit No. 4 represents the Vineyard ranch. The blue line extending across in a half circle along the upper side of the colored lands was the Salmon River channel at that time. It is marked "Salmon River." Everything within the black lines around the quarter-section points is the lands that were owned by the Sparks & Tinnin Company at that time. This line extends entirely around the area that is shaded or colored in ink, with the exception of a small area in the northwest quarter of the north-east quarter of section 16. This was outside of lands owned by them at that time. Prior to 1889 my partner, Col. Munroe, located some ditches. In 1889 there

were ditches on the Vineyard ranch as shown by Defendant's Exhibit No. 4. There were two ditches taken out from Jake's Creek, one on either side. The one on the east side forked just above the field, one fork extending not quite due east, and the other in an east and north direction across the field. The one on the west side was taken out and extended in a northwesterly direction on the west side of the bottom land. Those two irrigated the lands shaded dark between that and the Harrell ditch, which was taken out of Salmon River in the southeast quarter of the southwest quarter of section 9, township 44 north, range 63 east, and extended in a southeasterly and then an easterly direction across the shaded lands. There were two smaller ditches on Jake's Creek that extended easterly and there was a newer one connecting with the Harrell ditch that had been taken out to carry the water a little bit higher up and out of the old ditch line. The Harrell ditch is marked "Harrell Ditch" and is indicated on Defendant's Exhibit No. 4 by a heavy black line extending across the dark area. In addition to the Harrell ditch there are two ditches marked with the figure one, and on the west side with the figure two, and one taken out from No. 1 on Jake's Creek is marked No. 3. Two other ditches taken out of Jake's Creek are marked No. 4 and No. 5. The newer ditch higher up than the Harrell ditch is marked No. 3 also. These numbers give about the consecutive times, as near as I could find out, at which the ditches were taken out. Jake's Creek on Defendant's Exhibit 4 is marked "Jake's

Creek" and is indicated by a blue line extending from the south side of the map and joining Salmon River in the south side of section 10. The scale of defendant's Exhibit No. 4 is 16 chains to the inch, and the top of the map is north. The shaded area in ink indicates the land which was under irrigation in 1889. It is a correct representation of the irrigated lands at that time. It includes 814.4 acres. The tract was entirely enclosed by fence in 1889. The crops that were produced up to 1889 consisted of natural grasses. On the east side of Jake's Creek it was rye grass principally; on the west side it was finer, almost marsh grass, showing heavier irrigation than on the east. The property at that time was used in connection with the stock-raising business, and in going over the ranch and seeing the stock I believe there was over 40,000 head. Up to that time grasses were principally made use of for pasture for their beef cattle. There were two or three hundred tons of hay at the Vineyard. The hay was cut off of the best of it and the balance was left for pasture. Defendant's Exhibit No. 4 was thereupon offered and received in evidence.

Mr. McClelland (continuing) :

Defendant's Exhibit No. 5 covers the territory from what is called the Bird's Nest to the Bore's Nest canyon and Shoshone Creek. The Bird's Nest is northeast of the Vineyard ranch down the river. There was no irrigated land in 1889 between the Vineyard ranch and the point on Exhibit No. 5 called the Bird's Nest. It is about 12½ miles in an air-

line from the point marked "Bird's Nest" to the point marked "Bore's Nest." I made Defendant's Exhibit No. 5 from surveys made in October, 1889. The location of Salmon River is represented by a heavy blue crooked line, extending from the southwest corner toward the northeast corner. Part of Shoshone Creek is shown by a lighter blue line extending from the northwest side of section 24, 47-64, down southeasterly in section 23, where it joins the Salmon River. Trout Creek is located on the exhibit pretty near the line between townships 46 and 47 north, range 64 east, by a lighter blue line, and is marked "Trout Creek." There are a few small streams that flow into the valley between the Bird's Nest and Bore's Nest that are not marked on the map. In 1889 the Sparks-Harrell Company owned all of the land included within the heavy dark ruled line along the forty-acre lines extending on the east and west sides of the valley. In 1886 I made observations to determine whether the river bottom was being reasonably well irrigated. I am familiar with the land that was under irrigation in 1889 between the Bird's Nest and the Bore's Nest and I have indicated the area on Defendant's Exhibit No. 5 in the shaded part of the map, extending along the edge on each side of the river. Up to 1889 between the Bird's Nest and the Bore's Nest there were 4,178.4 acres under irrigation. There are no ditches or sloughs or dams on Defendant's Exhibit No. 5 that were not on the ground in 1889 and prior thereto. At the upper part of the southwest corner of the map, in the northwest

quarter of section 21, there was a dam in the river marked "Dam A." This threw water out upon both sides of the river, but it was principally taken out by a ditch extending north 200 yards or more into a slough, marked on the map "Bird's Nest Slough." About half a mile lower down the slough a dam was put in and two ditches taken out for a short distance. They are marked "Bird's Nest Slough C" and "Roland Ditch No. 1." Still further down the slough near the center of section 16, it branched into two branches, marked "A" and "B." There was a dam in the river in the northwest quarter of the southeast quarter of section 16, 45-64, and a ditch extending a little west and northerly at the forking of these two sloughs A and B. I am describing the conditions that existed in 1889. These two dams in the main river, with the sloughs, irrigated the lands in sections 21, 16 and part of 9. The dam marked "C" in the northeast quarter of the northeast quarter of section 9, diverted the water and threw it out upon both sides of the river. On the east side it went into what is called the Roland East Side Slough, and on the west side it was diverted into what is called the Middle Stack West Side Slough. Still further down in the northeast quarter of the southeast quarter of section 4, a dam marked the "Hank Roll Dam B" diverted the water into a ditch extending about an eighth of a mile westerly, from which it flowed into the Middle Stack West Side Slough. The land between the slough and the river was irrigated by the dam here extending from this slough and was then diverted

by a smaller dam. At the point marked with a cross, where the water didn't naturally flow over each way, a manure and willow dam was placed in the slough to spread the water out. It is the old fashioned method of irrigation. There was a dam near the center of section 23, 46 north, 64 east, marked on this map Mitchell Dam E, which diverted the water and threw it into what is called the Mitchell Slough. That extends along the east side of the bottom from that point to a point in section 55, township 47 north, range 64 north. Below this Mitchell Dam E about a quarter of a mile is another dam called the Hank Roll slough dam F, which diverted the water into the Warm Springs Middle Slough that extended between the main river and the Mitchell Slough. About a mile further down the river at a point about a quarter of a mile south of the section corner between sections 11 and 14, 46 north, 64 east, was the Fisher Dam G, and there was a combination of ditch and slough called Gray's ditch No. 1, which carried the water down in the northeast quarter of the southeast quarter of section 35, 47 north, 64 east. A mile and a quarter further down the stream at the north side of section 11 was Gray's Dam H, and a ditch extending northeast about an eighth of a mile. The Mitchell Slough extending along the east side of what is called the island, the Warm Springs Middle Slough, and Gray's Dam H were used in irrigating the lands on what is called the island. In the northeast quarter of the southeast quarter of section 35, at a point where a branch of the Mitchell Slough ran into the

river, a dam was placed and continued down into the Bore's Nest East Side Slough. The vegetation grown on these lands in 1889 was natural grass that grows in this country. It was used partly to cut hay on and parts of it for pasture. There is very little difference between the elevation of the lands shown by the dark shading and the river bed. In some points the Salmon River itself is higher than the land on the sides. I am familiar with that character of irrigation at other places in Nevada. It is the method carried on almost entirely on stock ranches. I was in the valley and on these ranches in 1893, laying out ditches for the Sparks-Harrell Company. I did some work out on Trout Creek meadows before I left the valley. The first work I did in the valley was to extend what is known as the Warm Springs ditch about a quarter or half a mile further. I was there about a month laying out ditches on the Salmon River and Shoshone Creek. I was there the next April, but in the Salmon River valley I was there only a few weeks. I was up in the mountains laying out ditches on the tributaries of the Salmon River. In April, 1895, I was there laying out ditches and assisting in the irrigation. I assisted in putting in a new dam below what is called the Fisher dam and taking out a ditch there. Ditch construction commenced on the river in 1893. The shaded portions of Plaintiffs' Exhibit 5 were all under fence in 1889.

Thereupon Defendant's Exhibit No. 5 was introduced in evidence.

Mr. McClelland (continuing) :

Defendant's Exhibit No. 6 is a map made under my supervision and the markings thereon are substantially correct. I believe that all of the ditches constructed on the San Jacinto ranch between 1889 and 1895 appear on Defendant's Exhibit No. 6. The heavy blue line extending from the southeast corner of the map to the westerly side, and ending at what is marked "High Cliffs" in the southeast corner of section 23, 47 north, 64 east, represents approximately the location of the Salmon River. Shoshone Creek and Trout Creek also appear on the map. The shaded blue lines extending along the quarter-section lines on the east, west and north sides of the lands covering Shoshone Creek and Salmon River, represent the lands that now belong to the defendant company. Between 1889 and 1904 the first work done on ditch construction on the east side of the river was in the northeast quarter of section 9, called the head of the Harrell ditch, and running from the river into the Roland East Side Slough. Below this ditch there was a dam put in and a small ditch lateral taken out upon the east side, extending perhaps half a mile, to the east of the slough. A half mile below that was another dam and a ditch was taken out that extended from the southwest corner of section 34, of 46, 64, almost due northeast to near the northeast corner of section 34, a distance of about a mile and a quarter or a mile and a half. That ditch may be about 8 feet wide and a foot deep. The next construction was the Harrell ditch, taken out from the Roland East Side

Slough in the northwest quarter of section 34. It was 16 feet wide on top and eight feet wide on the bottom and four feet deep. For about a quarter of a mile it had a fall of about four feet, and after that it was reduced to two feet, or in that neighborhood. It extended along the east side of the bottom and up to 1904 had been carried about three miles in length, to a point opposite the San Jacinto lane, and for another quarter of a mile was partly constructed. Further down and on the south side of section 23, 46 north, 64 east, a ditch was taken out from a spring and it tended to collect water which was used in irrigation under this Harrell ditch. It extended parallel with the Harrell ditch about three-quarters of a mile. It was six feet wide and about eight inches deep. Just below this and near the center of section 23, there was a cut taken out from the river, called the Moore cut, that diverted water into the Mitchell Slough. This was about an eighth of a mile long, about five feet deep at the head and some twenty feet wide on top. From this cut a headgate and ditch was taken out extending between the slough and the river in a northerly direction. About the first ten chains of the ditch was constructed and then dropped into a slough which was cleaned out and enlarged for a distance of perhaps ten chains further, or less; then the ditch was extended from that slough in a northeasterly direction first, then in a general northerly direction, following the highest part of the ground between the Middle Warm Springs Slough and the Mitchell Slough, ending just below the San

Jacinto lane. That is called the Rainwater ditch and is so marked on the map. In 1904 there was a little work done on what was called on the other map the Hank Role dam, to get the water out from the Warm Springs Middle Slough. Following down the river on the east side the next work that was done was at the Gray dam. A ditch was taken out just north of the section line of section 2, 46 north, 64 east, and was extended in a northeasterly direction about 10 chains into a slough extending northerly, which was cleaned out. Another ditch was taken out from a slough that might be called the Warm Springs Middle Slough. It was carried around in a northwesterly direction and dropped into this other ditch, by which means water was diverted from Mitchell Slough and Warm Springs Middle Slough, and also from the river, and carried upon the higher ground that lay along the east side of section 2, upon what was called the Harrell. Further down in the southeast quarter of section 25, 47 north, 64 east, a ditch was constructed about ten feet wide on top and one and a half feet deep; it extended along the east side of section 35 and the east side of section 26, into the southeast quarter of section 23, 47 north, 64 east. This is called and referred to on defendant's Exhibit 6 as the Bore's Nest East Side ditch. It was about two miles and a half in length in a straight line. The only other ditch construction on the east side was a lateral ditch under the Harrell ditch that was extended right along next to the Harrell ditch underneath it for the purpose of drawing the water out to irrigate the lands

lying underneath it and south of the San Jacinto lane. It extended from a point about eight chains north of the upper end of the old Harrell ditch to a point opposite the San Jacinto lane, and was located about ten to twenty feet away from the Harrell ditch. It was about four feet wide on the bottom and a foot deep. That is all the ditch construction I can recall that took place on the east side between 1889 and 1904. In 1893 I laid out a ditch line on the Bridge ranch commencing in the southeast quarter of the southwest quarter of section 17, on the north side of the creek, extending in a general northwesterly direction to the center of section 18, then more northwesterly to the west side of section 18, then in a southwesterly direction across the center of section 13, 47 north, 64 east. I am not positive that it was constructed the full distance as laid out, but construction was started in 1894 and it has been constructed across the road leading from the Bridge ranch to the Point ranch and into Idaho. I don't know how much further it has been constructed. Up to the road crossing it is a little over two miles in length. It is about 16 feet wide on top and three feet deep, and has about four feet fall to the mile. The only other construction prior to 1904 on the Bridge ranch was a dam placed in the main ditch at the east side of the southwest quarter of section 18, 47 north, 64 east, that diverted the water and threw it into a slough that extended along the south side of the Shoshone bottom. I should say that there is under fence on the Bridge ranch from 250 to 275 acres.

Oats and wheat were grown on part of it, natural grass on the bottom lands. I think there is some alfalfa there at present. On the west side of Salmon River, commencing at the Roland Slough at the north side of the northwest quarter of the northwest quarter of section 21, 45 north, 64 east, there is what is called, but not marked on Defendant's Exhibit No. -6, the Bird's Nest ditch that extends along the west side of the bottom. In 1904 it was fully completed to the northwest quarter of the northwest quarter of section 7, same township and range. It had been partially constructed about another mile further, but was not completed at the time when I left. This ditch was 20 feet wide, four feet deep and down towards the lower end of the constructed part was about 16 feet wide and two or three feet deep, I think. Continuing down the river the next ditch construction was in the southwest quarter of the northeast quarter of section 27, 46 north, 64 east. It is what is known as the Middle San Jacinto ditch, starting from the river and extending in a northerly direction, and it first crosses what is known as the Warm Springs wash and extends below the Upper Warm Springs ditch and parallel with it. The next I knew anything about it it was constructed to the northwest corner of section 14, to the fence line. That was prior to 1904. That ditch was about four miles long; about 14 feet wide on top and two feet deep. Then there was taken out of the Warm Springs channel itself a ditch called the Warm Springs Lower ditch, nearly half a mile below the Warm Springs Upper ditch and run-

ning parallel to it. It extended down to a point just west of the San Jacinto house; then it was brought across the road to a point closer to the house and ran along the lane northerly from that point. It was about a mile and a half long; 10 feet wide and a foot and a half deep. That is all the ditch construction that I can remember of prior to 1904. I have referred to the Upper Warm Springs ditch and the Lower and Middle Warm Springs ditches, coming out from the river. I made the survey of all of these ditches with the exception of the first start of the Harrell ditch. In 1895 I placed a dam in the river and had a ditch constructed out about 10 chains northwesterly, extending into the Gray ditch No. 1 to take the place of the Fisher dam. I believe all these ditches are correctly located on Defendant's Exhibit 6. I did not make the survey, but from my knowledge of the ground, from general conditions, I believe the ditches are correctly located. I located the Harrell ditch starting from the Roland East Side Slough in the northwest quarter of section 34. The present location was made in 1892, before I went onto the ranch, and they started from the northeast quarter of section 9. I have been informed that a ditch had been located prior to the time I located the Harrell ditch and I saw stakes along what I supposed was a ditch line. I afterwards ran a line for the Harrell ditch throughout its entire proposed course. I did this in September, 1897. It is indicated on Defendant's Exhibit 6 by a blue line marked "Highline Canal," in several places. That is the ditch that was

constructed entirely down to the San Jacinto lane and perhaps a little below it in 1904, but the part below was only one or two plow furrows deep for perhaps one-eighth of a mile. Construction commenced immediately after I located it. I made out a notice of appropriation of water to be filed to cover all years after that. Pages 11, 12, 13, 14, 15 and 16 of Defendant's Exhibit No. 2 are a copy of the location notices which I made out to cover the water for that ditch, and I believe I filed it myself, but am not sure. The Harrell ditch as originally constructed between the upper end of it and a short distance below the San Jacinto lane was 16 feet wide on top, 8 feet wide on the bottom and four feet deep. It covered lands owned at that time by the Sparks-Harrell Company. The lands that would have been covered if the Harrell ditch had been completed on my survey line are described in full in the notice of location which I have just identified. They are northeast of the northeast of 9, east half of the southeast of 4, west half of the southwest of 3, the northwest of 3, township 45 north, range 64 east; southeast of southeast of 33, southwest quarter of 34, east half of northwest quarter of 34, northwest quarter of northeast quarter of 34, east half of 27, northwest quarter of 26, south half of southwest quarter of 23, northeast of southwest of 23, east half of northwest of 23, east half of 23, northwest quarter of 24, west half of 13, northeast quarter of 13, east half of 14, all of 12, the east half of 11, of 46, 64; all of 1, east half of 2, west half of northwest quarter of 7, 46, 65; west half of 6,

northeast quarter of the southeast, northwest of the southeast quarter of 6, in 46, 65; east half of 35, all of 36, all of 25, east half of 26, southeast quarter of 23, all of 24, of 47, 64; southwest quarter of 19, south half of southeast quarter of 19; southwest of northwest of 19, north half of 30, northwest quarter of southeast quarter of 30, southwest quarter of 30, the west half of 31, in township 47 north, range 65 east.

In the fall of 1893 I made surveys for ditch construction on the Trout Creek bottoms. These are not shown on Defendant's Exhibit 6. They are about 12 or 14 miles up the creek. Defendant's Exhibit No. 7 shows the Trout Creek meadows. There were two ditches leading out, laid out by me, and a plow furrow run to mark them, and the heads of the ditches constructed for a short distance, perhaps 100 feet, but the balance of the ditch was constructed afterwards and I haven't seen it. I filed a notice of appropriation of water at the time I laid out those ditches. Defendant's Exhibit No. 8 is the notice of appropriation of water filed by me to cover the surveys in that year on Trout Creek. It is in my handwriting. The lines of one of the ditches appears on Defendant's Exhibit No. 7. There are two ditches in this notice of location. I commenced the survey at Trout Creek in the southeast quarter of the northeast quarter of section 3, and extended it in a general northerly direction across the east half of the northeast quarter of section 3 and the east half of the southeast quarter of section 4. The lower terminus

was in the east side of the northeast quarter of the southeast quarter of section 34, 45 north, 65 east. During the years that I was connected with the Sparks-Harrell property it was the practice in the spring of the year for the cow outfit to turn the water out of the streams by means of dams and ditches on the land. After that generally one man would be left to a ranch to see that the water was spreading over the land and kept running until haying time. On the San Jacinto fields after about 1890 there was a crew of men, called a ditching crew, which would be organized under the control of one man as manager, in the early spring, and it was their duty to turn the water out. They did this on or before the first day of April of each year, and until haying time most of the time would be spent in seeing that the water was kept on the land. After the first diversion and placing it upon the ground it would be left for a couple of men to look after and they would then go out and do ditching on the range in different parts, building fence lines, hauling down wood and almost anything that was required for ranch work. In those years it was about 70 miles to railroad, at Wells. Afterwards there was a railroad about 30 miles from San Jacinto, at Rogerson, Idaho. This is the nearest railroad point now.

I have made a study and become informed as to the quantity of water, or what you might say the duty of water is for irrigation of the character I have spoken of, that is the flooding of lands, at these various ranches. The duty of water is very small,

because there is a large quantity of water placed on the land and under those conditions the evaporation is very great. The growing plants there take up double or more as much water as if they were irrigated in a different way, and then there would be quite a large quantity of water either flow back into the streams on the surface or come back underneath. I have an opinion as to about the amount of water per acre that would be consumed either by evaporation or taken up by plant life in that form of irrigation. It is from four to five—

THE COURT: Just a moment. Unless the witness has some experience, of course it won't help me any.

Mr. McClellan (continuing):

I have studied the matter of the duty of water for forty-five years, in connection with the character of irrigation carried on in Nevada. I have observed it a very little in connection with the growing of alfalfa. My observations have been confined mainly to the method of irrigating used by the ranches in Nevada, in flooding the lands, putting the water onto it in the early spring and letting it run until haying time.

Q. And for wild grasses of that character, what class of irrigation, if you know, is necessary?

A. The method that is being used—

THE COURT: Just a moment. It is a question whether this witness knows anything more about this than the Court. If he does, I shall be very glad to have his opinion; if he does not, I don't care to have the time taken.

Mr. McClellan (continuing) :

I have had experience in irrigating and supervising the irrigation of such lands. It has extended at different times since 1886, principally over the Sparks-Harrell range. I have observed from season to season the character of irrigation that was necessary to produce those crops, and have noted the effect of the flooding system upon the crops there and at other places as well. With the crops that are raised on that land, as the condition of the plants is there, they have got to be irrigated in that way to produce anything at all. The irrigation extends from on or before the first of April to between the 1st and 10th of July.

Q. You have spoken of there being considerable evaporation in connection with irrigation of that character. I wish you would explain why that takes place.

THE COURT: And how you know, Mr. McClellan, if you do know, how you know whether there is much or little evaporation.

Mr. McClellan (continuing) :

My knowledge of evaporation is derived from reports of the United States Weather Service taken in the arid regions. There is a table that has been published of evaporations of a large number of different places in the arid regions by the United States Service in 1887 and 1888, I believe it was. Those tables can be secured from the Government, and they are also published. There is one place in Nevada, at Winnemucca, where the evaporation was observed,

that I believe comes about as near the climatic conditions to Salmon River as any of the others, if not nearer.

Q. Do you know what the evaporation is there?

A. That year, yes.

Q. At Winnemucca?

THE COURT: Why is that important? I don't quite understand how evaporation enters into this question now, unless you are rebutting testimony brought out—

MR. NEBEKER: No, I am not rebutting it. Our theory is this, that I don't know just what particular turn this case will take, but it may become necessary for us to show that we have established a right to the use of a large quantity of water which we would be entitled to, even although our system of irrigation in the past has not been the most economical, and now we propose to use a system of irrigation and bring a somewhat larger area of land under cultivation, which would result after all in less loss to anybody else lower down the stream than our former system of irrigation. That is the point.

THE COURT: I don't quite understand yet how evaporation would have anything to do with it. You mean evaporation from the surface of the stream or evaporation from the soil saturated with water?

MR. NEBEKER: Evaporation from the surface of the water that is used for irrigation under a past system, that is, a system by which the entire area was kept under water for some months of the year. That furnished a surface from which there was a

very high evaporation. I say it may become necessary for the Court to determine whether or not we should be permitted to use that same water, which would otherwise be lost under our old system of irrigation, apply it to a use where the evaporation would not be so great and by a method which would consume less water by evaporation.

MR. HAGA: Does counsel claim that evaporation is a beneficial use?

MR. NEBEKER: It is a necessary incident to irrigation to which we are entitled.

THE COURT: That is true, that the loss by evaporation should always be considered in determining the amount of water which is required for the reasonable irrigation of any tract of land, that would be the evaporation of water in the distributing ditches and reservoirs, if there be a reservoir, and also the evaporation from the soil; but perhaps I can't anticipate what you are getting at here, the way the question is put. You ask for evaporation generally. Now, if this witness knows anything about the amount of evaporation there, it may or may not be material.

MR. NEBEKER: I think it will appear to be material, in connection with the testimony that will be offered later on.

THE COURT: Of course, in a case of this kind the evidence takes such a wide range anyway that I don't care to open the door to immaterial testimony or incompetent testimony.

(Last question read.)

MR. HAGA: The question is objected to as irrelevant and immaterial, and as not a basis of determining the amount of water applied to a beneficial use.

THE COURT: This question is as to the evaporation at Winnemucca?

MR. NEBEKER: Where the conditions are the same.

THE COURT: The same as what?

MR. NEBEKER: The same as at Salmon River, where the irrigation takes place.

THE COURT: Perhaps I can get at this more quickly by asking the witness myself.

THE COURT:

Q. What do you mean by conditions at Winnemucca?

A. The general climatic conditions.

Q. Do you know anything about the conditions under which the experimentation was carried on?

A. Just as it is described in the pamphlet of the Government.

Q. Have you the pamphlet?

A. No, sir.

THE COURT: The objection will be sustained to that particular question then, because it seems that all he knows about it is what he has read in this pamphlet, and he should have the pamphlet.

Mr. McClellan (continuing):

At the time I made the location of the ditch for the Bridge ranch I filed a notice of appropriation of water with the County Recorder of Elko County, Nevada. Defendant's Exhibit No. 9 is that notice.

It was filed for the company. It was a notice of appropriation of water to be carried through the ditches that I surveyed at that time. The north ditch was afterwards constructed; the other one was simply constructed so far as putting in a dam and a very short ditch to throw the water from the creek into a slough extending along the south side of the bottom. I should judge that Defendant's Exhibit 1 shows in the colored portions all of the lands at the San Jacinto ranch, the Hubbard ranch and the Vineyard ranch that are owned by the defendant company. The watershed commences at the Idaho-Nevada state line in the west half of section 6, 47 north, 68 east, running in a general southerly direction a little west; about six miles, to the south side of township 47 north in range 67 east, between sections 35 and 35; thence southwesterly to the south side of township 46 north, range 66 east, about the center of section 35; thence in a west of south line to the west side of township 44 north, range 66 east, about the center of section 18, thence curving around to the west and south one mile east of the township corner between townships 42 and 43 north, ranges 64 and 65 east; thence extending in a southwesterly direction to the west line of township 41 north, range 63 east, about the corner to sections 7 and 18; thence curving off to the south side of section 6 of township 41 north, range 62 east.

The line I have described is marked with a blue line, and it locates in a general way the water basin of the tributaries in the east side of the Salmon River. The watershed on the west side of the river extends outside of the map.

MR. NEBEKER: We also offer Defendant's Exhibit No. 8, being the original water and ditch location notice, together with the endorsement on the back thereof, showing the date and place of filing.

MR. HAGA: The same objection.

MR. NEBEKER: The defendant offers Exhibit No. 9, being water and ditch location notice, the original, together with the endorsement on the back showing the place and date of recordation.

MR. HAGA: The same objection, if the Court please.

The Court received in evidence said exhibits 8 and 9 for the same purpose as that to which the Court limited Defendant's Exhibits 2 and 3.

CROSS EXAMINATION OF WITNESS E. C. McCLELLAN:

I did not go over all of the ranches on the Salmon River when I saw them in 1880. I crossed the valley on section lines generally, from the Bird's Nest to the Bridge ranch, making the survey for the Government. The ranches were partly occupied at that time. There was no fencing except at the Bird's Nest. There was a cabin at the Bore's Nest and the Roland house at the Bird's Nest. There wasn't anything at the San Jacinto ranch at that time. There was a log cabin and corrals at the Vineyard ranch and the place was fenced practically as it is today. The improvements were very near the same then as now, with the exception of what is called the Upper Vineyard ditch, which has been constructed since that time. At the Vineyard place the bottom was covered

with grass, rye grass showed up the best, and covered practically all of the field, except the lower bottom lands next to the river and Jake's Creek, where there were other kinds of natural grasses, more like water grass. At the Bird's Nest there was considerable meadow land on the Roland ranch. There was a willow fence extending from the Bird's Nest bluff in a northerly direction alongside of the road connecting with the river on the west side of the field. The river formed a fence on the east side of the tract of land that was under irrigation. There was a cabin at the Middle Stack field. The meadow lands had been cut, and the hay was at that time stacked up not far from the house. As far as I can remember there was no hay cut from there until you get below the San Jacinto ranch. My recollection is that there was some hay cut above and below the Bore's Nest house shown on Defendant's Exhibit 5, on both sides of the river. The house was a log cabin with a dirt roof. Some of these bottom lands were originally natural meadows. Jasper Harrell seemed to be the one who was making use of the hay at that time, and from all that I could hear he seemed to be the sole claimant of all the lands along the river from the Vineyard to the Bore's Nest. When I stated yesterday that there were as many as 40,000 cattle on the ranches I meant on the Salmon River ranch alone. That would cover the watershed as shown by the blue line on Defendant's Exhibit 1, and extending from there the range at that time went west about 30 miles further and extended north into Idaho clear

to Snake River. The estimate of cattle I made from what I saw from 1880 to 1886 or 1887. I don't believe there is anywhere near that number of cattle on the whole range today. I came back into the valley for about one week in 1881 for Jasper Harrell. I made the selections along the Salmon River at that time. All together I selected all of the lands colored in red on Defendant's Exhibit No. 1. The basis of selection was the value of the land for stock-raising purposes and partly for what might be the future value for agricultural lands. The first selections covered the streams and springs alone. Later on, selections were carried away from the streams, covering lands that might be irrigated by taking water from the streams and carrying it onto the land. I made selections continuously in 1883, '84, '85 and '86, 1894 and '95, and I think about 1896. The last selection made by me was in filling out and making a continuous large body of land that might be fenced or irrigated in the future. The rye grass that is cut for hay grows from two feet and a half to six and even eight feet high in fine growth. The bottom grass grows from six inches to a foot and a foot and a half. The better parts of it were cut for hay, and the balance was left for pasture. There is a small amount of waste in the rye grass that the cattle don't eat. The lower stalks are very large and become woody if not cut before it is out of bloom, and the stock will not eat every bit of it, except when forced to through hunger. In 1909 I did the last work on any of the lands in the valley. In selecting the land I was gen-

erally there in the summer or fall. In laying out these different ditches it was sometimes in the early spring, in April, and from that on until November. I was not there continuously between those months, and there were seasons when I was not on the river at all. In 1904 there had been a heavy run-off in March that carried away all their old willow dams and washed out what headgates they had there. I went over there the first of April and was there almost continuously until just before the first of July. I was assisting in fixing up the old works and in laying out new head places to get the water out where the old works were destroyed. There was also a little work done in extending some of the lateral ditches. It would be a very poor estimate that I would give as to the number of tons of hay cut on the Salmon River ranches, but I should guess it somewhere between 200 and 300 tons. It did not vary much from year to year. The Vineyard ranch was fenced when I went there in 1880. The valley from Bird's Nest to Bore's Nest was apparently fenced when I went there in 1899. I did not assist in irrigating these places, except that in 1894 it was in such bad shape I did about as much work as any of the men in getting the water out of the river and preparing to spread it. I did not assist or have charge of the spreading of the water. There was a time when I believe they sold a little hay to the miners at Contact. This would not amount to fifty tons a year. I am reasonably certain that alfalfa was placed upon about 20 acres at San Jacinto in 1893. The crop was just ordinary; it

might be two or three tons to the acre. I think this alfalfa is still there. For a few years after 1893 it was irrigated from the Warm Springs ditch; later from the Middle and Lower San Jacinto ditches. The upper tract was irrigated from the Upper Warm Springs and Middle ditch. The alfalfa was on bench land. This is the only crop of tame grass, except some at the Bridge ranch. Some of the bottom lands along the Salmon River were in sagebrush to begin with. When I first went into the country in 1880 the upper part of what is called the island was sagebrush; practically no grass at all. Alfalfa was cut twice a year. I believe they raised some grain under the Warm Springs ditch. The method was to clear off the ground and put it into grain one year, and the next year put it into grain and alfalfa. The Warm Springs ditch rises in a spring and flows about a mile and a half parallel to the river, and empties into the river. In 1904 the work was principally in fixing up the old workings, and a very little new work. The ditches are shown on Plaintiff's Exhibit No. 18 about as they are on the ground. There are some ditches upon the ground that are not shown upon this exhibit. The ditches taken from Jake's Creek are not shown. Two of them started a little south, in the northwest quarter of section 22, 45 north, 63 east, upon each side of the creek; one extended northeasterly and the other nearly due north. That would be about a quarter of a mile up the creek from the ditch that is shown in the northeast quarter of the northwest quarter of section 22. The land that is irrigated from these

ditches commences in the northeast quarter of the northwest quarter of section 22 and the northwest quarter of the northeast quarter of section 22, extending on both sides of Jake's Creek and running down and connecting with what is marked on Plaintiffs' Exhibit 18 as the old Vineyard ditch. There is some sagebrush still on the land lying between the ditches on the upper side of the colored ground on Plaintiffs' Exhibit 18 and the upper Vineyard ditch, but it has been irrigated for a great many years. It is grown up with a heavy growth of rye grass; that is part of it. All of that lying between the Upper Vineyard ditch and the shaded portions of the map is not irrigated. There was a strip along there varying from perhaps 50 yards wide in the upper end to three or four hundred yards at the lower end that was not irrigated. The balance was irrigated, either from Jake's Creek or the Vineyard ditch. A small amount of this land not irrigated is in section 22, and the balance in section 15, 44 north, 63 east. There might have been some of the land lying outside of 15 that was between the ditches shown on Plaintiffs' Exhibit 18 watered from Jake's Creek. The overflow dropped into the Vineyard ditch and assisted in irrigating the lands below that ditch. They are not all in sagebrush; by that time it was getting into meadow land. Above the Vineyard ditch the greater part was in meadow in 1904. The ditches taken out from Jake's Creek prior to 1880 created the meadow. The Upper Vineyard ditch was constructed in May, 1889. I started the survey at the crossing of Jake's

Creek and extended it up the river to the point marked "Tunnel" on Plaintiffs' Exhibit 18. I did not survey the balance of the ditch at that time. I think the next time I saw the ditch after it was commenced was in the spring of 1890. In passing by on the road I could see that some work had been commenced on the west side of Jake's Creek. The first time I saw water flowing in that ditch was in last November. The notice of location was made out May 6th, 1899. On Plaintiffs' Exhibit No. 18 the Harrell ditch commences in section 9, 45 north, 64 east. After 1904 the point of diversion was changed to a point higher up, in the neighborhood of three-quarters of a mile. It was surveyed in 1892 and the first work was done to my knowledge in 1893, about the 10th of October. From appearances they worked there only a short time. C. B. Moore was in charge. There was no foreman on the San Jacinto at that time. There was a man there by the name of Buck Rice, who put up the first cabin. I had been there only two or three days when he left there. Mr. Bowers was manager of the whole of the company's property. It was then called the Rancho Grande. In the fall of 1893 the Harrell ditch was constructed from the river to the Roland East Side Slough, a distance of perhaps ten chains. I think the next spring the slough was enlarged to a sufficient carrying capacity for a distance of perhaps a mile. In the fall of 1894 I believe there was a ditch taken out from the east side of the slough to irrigate some of the bottom lands that had formerly been irrigated from the Roland Slough. By

getting a surface irrigation they could secure a better crop. That ditch was taken out in the northeast quarter of section 3, 45 north, 64 east. It was perhaps half a mile long, as near as I can remember. I don't know when the next work was done on the Harrell ditch, but I measured up work that was done by Mr. Moore in October, 1894, and found that he had done work on the ditch 94 chains in length, seven feet wide and nine inches deep, and this work was within about half a mile of the ditch I described and I am reasonably positive it took in a part of the ditch that starts from the Roland Slough at the south side of section 34, 46 north, 64 east, and extends north and easterly across section 34. There were two separate ditches or laterals taken out of this slough. The next work that I have any record of was in September, 1897. The ditch was started from the Roland Slough to carry the water on the bench lands as originally intended. I laid it out 77 chains in length, and I think that was nearly, if not all, constructed that fall. That would be a good three miles and a half above the San Jacinto lane. The next September I started at that point and laid out the ditch to a point opposite the San Jacinto lane, 330 chains in all. The terminus of the Harrell ditch in 1909 was at the same place as in 1904. I know Mr. Moore did work upon it as soon as I laid it out. He was on hand to continue the work and carried it right along. His crew consisted of men separate from the ranch hands, but the men were used on ranch work whenever they were needed, and placed

on the ditch work whenever they were not being used on other work. The work was done at different times from year to year when there was nothing else to do. I believe the ditch was constructed that fall about to the line between the Lower Middle Stack field and the Warm Springs field, three-quarters of a mile. In the fall of 1904 the lower end of the canal was at a point about a quarter of a mile north or northeasterly from the east side of the San Jacinto lane. The road that now crosses the ditch in the lane has been put in since the ditch was constructed past there. The original road turned directly north between the fence and the ditch and crossed the ditch line about half or three-quarters of a mile further down. The end of the ditch was a little northeasterly of the center of section 13, 46 north, 64 east. I think the water was first carried in that ditch down as far as the lane in 1904 and was used in irrigating the up-lands from the lane south practically clear to the head of the ditch. As fast as the ditch had been constructed water had been turned into it and all the lands irrigated between the ditch and the old irrigated lands on the bottom. I laid out some work on the Harrell ditch in 1909, but I don't know whether the work was done that season or not. I started at a point about a quarter of a mile north of the San Jacinto land and surveyed the ditch line from that point to the crossing of Trout Creek, just east of section 6. Since 1909 I haven't had anything to do with this ditch. I don't know of any other ditches being constructed between 1904 and 1909 as I was not connected with

the company from 1907 until 1909. When I went there in 1909 it was to lay out this one ditch.

I actually surveyed the outer boundaries of the shaded portions shown on Defendant's Exhibit No. 5. The exhibit is drawn and prepared according to stations and lines as they were run by me at that time. I put no stations on my original maps, nor any courses or distances in my notes. In fact my notes consist simply of a plat or series of plats in my note book.

In making my survey I would go to a section corner or quarter-section corner for a start. My plat book is laid off into squares, and I would take a certain number of those squares to a mile and then I would start from a corner, and I would run up along perhaps a section line for a ways, say one of those squares marked five chains square, I might go ten chains, and then I would note what there was on each side of my line, and perhaps I would go a quarter of a mile north, and then if I appeared to be getting too far away from what I wanted to locate I would turn and perhaps go to a course that in the next quarter of a mile would bring me ten chains east.

I was alone and was engaged about four days in making those observations. The first sketch was made on the ground. The next I sketched out on a small scale or a map the work I did each day. This map was larger than the map in my plat book and was left in camp. I used a transit in doing my surveying, and in sketching my maps I laid off my sec-

tion lines and the quarter-section lines, then sketched in from my plat book. I stepped the distances from the section corners. I was attempting to locate the lands that water was turned upon and was irrigated by the company, either by flooding or from water carried through ditches or sloughs and dams placed in the sloughs to spread the water over the ground. The land is tolerably even from one side to the other and has a heavy fall at the upper end about four or five miles down to Bore's Nest. It is nearly 25 feet to the mile. It gradually gets less as you go down the valley to the Bore's Nest. I believe the fall there is not over six or eight feet to the mile. I could tell the irrigated portions partly from the edge of the bottom where the grass land stopped and sagebrush commences. In one instance I was able to determine the lower end of the irrigation from the Gray's ditch by seeing on the ground where the water had flowed and spread over there during that season. I was there in October. The irrigation ceased about July 1st. They stopped irrigation in those meadows between the 1st and 10th. Haying commences about the 10th of July. In some parts they continue the irrigation for some days longer in order to keep the grass green. With small crews of men it would take a long time to cut the hay so the water would be turned off first from some parts of the ground and on others they would keep the water on longer to continue the growth so it wouldn't ripen so quickly. They commenced to irrigate on or before the 1st of April of each year. There may be snow storms in

April; there never was any when I was there. I have heard that they have hail storms over there. There is only one season that there might have been snow storms there, and that season was one when they had several inches of snow in the northeastern part of Nevada on the Fourth of July.

I made no distinctions on the map between the parts of the ranch that were never cut for hay and that where there were willows and other kinds of brush. The shaded portion is all irrigated land. The total acreage, including the 814.4 acres on the Vineyard ranch, is 4,992.8 acres as shown on the shaded portions on Defendant's Exhibits 4 and 5. In 1889 I don't think over 1,000 acres had been cut for hay any season in both tracts. Fully that acreage has been cut over; not entirely on those lands but on other lands placed under irrigation. The land that was cut over when I first knew the country is almost all used for hay land; some of it has grown up to willows and they used it for pasturage. In 1904 there were four or five thousand acres being cut over. They were cutting over land that had formerly been used for pasture and sagebrush that had never been irrigated. When I saw the land in 1909 it was not substantially in the same condition as in 1904. A great deal of brush land had been cleared off and they had cut hay off of it. That was all up and down the valley from the Hubbard ranch to the Bore's Nest. It appeared to me from just what I noticed in traveling down the valley that they had cleared off brush from all parts of it in different small pieces, say a

few acres in one place and 15 or 20 acres in another, under works that had been constructed previously.

Rye grass as a rule is in bunches, with nothing between the bunches. It was cut for hay. On the Vineyard ranch where the most of the rye grass is there must be three or four hundred acres that is cut for hay, and the hay is used for feeding the stock. It is the strongest hay that there is there when it is cut at the proper time. I have heard that they call a field below the original Vineyard field by the name of Starvation field. That is not included in my estimate of the acreage that was cut over or irrigated.

RE-DIRECT EXAMINATION:

The tract referred to as Starvation field is not included in the shaded area showing the irrigated lands on Defendant's Exhibit No. 5. The greater part of the land that I noticed in 1914 from which the brush had been removed was under the irrigation system of 1889. I am not positive as to when between 1904 and 1914 this clearing took place. The grass and verdure that was grown upon those lands before the brush was taken off was used as pasture for cattle and horses. In the early years there was no feeding done of any stock except two or three saddle horses and a milch cow during the winter. The stock rustled their feed and there was hardly any hay cut. That system changed after the winter of 1889-90. There was a loss of about seventy to ninety per cent of the stock, due to the carrying out of that system. The owners decided that it would

be advisable to cut a little hay and commenced to provide for carrying their cattle over such seasons. There was a steady increase in the amount of hay cut, although there was not a corresponding increase in the area of irrigated land. Prior to that time there were lands on which hay could be cut that was simply used for pasture. In some instances that is still taking place. I have noticed in going over the country almost every year tracts of land that were either in a position to cut for hay that is still used for pasture, or tracts that by clearing off a little brush or willows might be used for hay. The growth of grass was amply large enough to cut for a hay crop. Rye grass not cut for hay but used for pasturage is very valuable. The grain is almost equal to oats for feed, and when you put a band of cattle or horses into a field of that grass the first thing they do is to eat off the tops of the grain, and then gradually go down on the stalk and the blades of grass growing on the side of the stalk. During the many years of my experience in the valley I think that generally about all the grasses were consumed by spring. I have seen water flowing on the meadows at the Hubbard ranch after the hay is put up. Just at present I can't remember any other place.

Q. Now, I will ask you, Mr. McClellan, to state whether or not from your knowledge of that particular kind of irrigation that took place in that valley and on these ranches, and of the kinds of crops that were grown there, if you are able to tell us in miners' inches the quantity of water that would be required

upon those lands say from the 1st of April until the 10th of July?

MR. HAGA: That is objected to, if the Court please. Proper foundation has not been laid.

THE COURT: Sustained.

Mr. McClellan (continuing):

I have had experience in the growing of crops of the kind that are grown on these ranches. In 1886 I had charge of and assisted in the irrigation of similar crops on the H. D. ranch in Thousand Springs Valley. I did not make any measurements, but I observed the amount of water placed upon the lands and estimated as closely as I could. The water is customarily used continuously on the land from the 1st of April to the 10th of July, and as a rule is flooded during all of that time over the entire surface. I know the quantity of water per acre in miners' inches that would be required for that purpose.

Q. You may state what quantity is required.

MR. HAGA: I object to it.

THE COURT: You may interrogate him as to how he knows, if you desire.

CROSS EXAMINATION (by Mr. Haga):

I made a rough measurement one time by taking the depth and width of water flowing through a head-gate at the Bird's Nest ditch, estimated as closely as I could the velocity of the water at that point, so as to consider the amount of water flowing through that ditch. It was some time during the month of May in 1897, I believe, but I am not positive. That is

the only estimate I made of water flowing in the defendant's ditches on Salmon River by taking the actual size of the head-gate and the depth of the water flowing through it. A lot of the water was diverted and used from the river by means of dams without ditches or headgates. That might have been measured if a person would take the time and pains to do so, but I did not do that. I had no current meter for measuring the water at the time I made the estimate on the Bird's Nest ditch. I made the estimate to see about the amount of water that was going out there, was all. I own a current meter and use it sometimes. I have used it on the Humboldt River. I have had more experience with weir measurements, in Reno, in Ruby Valley, Independent Valley, near Tuscarora, in Mound Valley and on the south fork of the Humboldt. I have never conducted any experiments to determine the amount of water that the grasses grown on these lands require for the best growth. I think I know the amount of moisture that is required in the ground for the most favorable production of the crops or grasses grown on defendant's lands. I have not conducted experiments for that purpose. I have seen experiments conducted in other places but not in this valley, on this kind of crop and to determine the amount of moisture that is present in or upon the soil for the production of that kind of crop. I did not compare the result for the varying quantities of water put on the soil. My experience was on one of the ranches of the company, called the H. D. ranch, in Thousand Springs Valley,

in 1886 and I think in 1895. I had charge of irrigation. The water was turned out in identically the same way as on these lands. That is not the extent of my experience in actual irrigation. I commenced irrigation on my father's ranch when I was 12 years old. On lands of this kind that was the practical extent of it. I have observed the same irrigation throughout Nevada as used in that way.

THE COURT: Objection sustained. I will say to you, gentlemen, that there was a time some years ago that we tried to adjudicate controversies of this kind with evidence perhaps no better than would be given by this witness on this point, because that was the best evidence we could get at that time, but that is no longer necessary. Irrigation has advanced to such a point, and we have had so much experience with it, that it is entirely practical to have scientific, practical evidence on a matter of this kind. The mere fact that a large amount of water has been used upon land is no evidence that a large amount is necessary.

RE-DIRECT EXAMINATION (continuing):

Q. Do you know of any reason, Mr. McClellan, why, if it be a fact that it is necessary to keep water flowing over the surface of the ground for the production of such crops as you have spoken of along the Salmon River?

A. Yes, sir.

Q. Why is that?

MR. HAGA: If the Court please. That is objected to. No proper foundation has been laid.

THE COURT: Objection sustained. The witness has not testified that it is necessary, Mr. Nebeker. You asked him why it was necessary.

MR. NEBEKER: I asked him first if he knew of any reason why, and I asked him what that reason was.

THE COURT: Yes, but that is getting at it indirectly, to the question whether or not it is necessary. If you were to ask him the question whether or not it is necessary, I should have to sustain the objection on the ground that he is incompetent to answer that question.

Mr. McClellan (continuing):

In my experience in irrigating lands of this character, as to the result upon vegetation of that character of irrigation, I have observed the result if water is not caused to flow over the surface during practically all of the period from April 1st to July 10th. I have made these observations on Salmon River, Thousand Springs Creek, the Owyhee River, in the Humboldt Valley, Clover Valley and Ruby Valley, including several thousand acres, for over twenty-five years. If the water is not caused to flow over the lands continuously there would be little or no grass grown. If the water was taken off for ten days prior to cutting, or from that to two weeks, the effect would be that the crop would ripen immediately and stop growing. It would stop inside of a week or less. The grass that has been irrigated by that method will stop; rye grass as well as any other grass. Rye grass will grow a little longer because the live roots

extend down a little deeper than the others; but the other grasses there are no live roots a quarter of an inch below the surface. If rye grass has been irrigated for a few years under the method used in that country the deeper roots will all die. The only roots that are left are surface roots. The minute you take the water off the ground it dries up on the surface. There is no moisture for the roots and the growth stops.

I went over these properties along Salmon River in 1914 and I found additional areas that had been brought under irrigation subsequent to 1904. These were located on the bench north of San Jacinto lane, under the Harrell ditch. With the exception of those areas the irrigated area on the Salmon River appeared to be the same in 1914 as in 1904. I observed the size of the Harrell ditch at two points between the San Jacinto lane and the head in 1914. It had been cleaned out and appeared to me to be about the same size as it was in 1904, but it was in a better shape for carrying water. In 1909, at the time I laid out the Harrell ditch to a point opposite the San Jacinto lane, I placed stakes at the corner posts on each side of the lane and took notes of the elevation. From that data I was able to bring up my elevation to a point opposite the lane and continued the ditch line on to Trout Creek. It was the same line that I had surveyed in 1897. When I located the line in 1897 I placed stakes every ten chains, and set willow flags, and the survey I made in 1909 was on exactly the same line.

A ditch has been constructed on the Vineyard ranch since I was there in 1904. I believe it is fully a mile and a half above the head of the old Harrell ditch and extends easterly, or southeasterly, following very close to the river first and afterwards very close to the old Harrell ditch, until it reaches the point of the hill bending around and up Jake's Creek and this ditch extends in almost a southerly direction to near the upper end of the Vineyard field where the fence crosses Jake's Creek. The ditch then extends almost due east across the bottom to the east side of Jake's Creek bottom, and thence in a northerly direction along the east side of Jake's Creek bottom. From the examination I made as we were traveling along the road there must be altogether 100 acres, but not more, under the new Vineyard ditch than had been irrigated from Jake's Creek and the old Harrell ditch. As I observed the irrigation that took place upon these properties during the years that I was there, water was taken through the various ditches I have testified about to their full capacity, with the exception of the Harrell ditch. The water was used upon the land.

RE-CROSS EXAMINATION:

The lands shown on Plaintiffs' Exhibit No. 18, lying on both sides of Trout Creek, and a part of the tract that is colored green lying under the High Line ditch, and being in sections 36 of 47, 64, section 1 of 46 north, 64 east, and section 6 of 46 north, 65 east, were not under irrigation in 1909. A part of the land colored green on Plaintiffs' Exhibit 18, but not

all of it, was not under irrigation in 1909. The part colored green lying to the east of the Mitchell slough and south of the San Jacinto lane was under irrigation not only in 1909 but in 1904. All of the land under the Harrell ditch as far north as the San Jacinto lane was as far as I know under irrigation in 1904. It was irrigated for pasture but not cut over. The sagebrush was still there and the water was run into the sagebrush; that was the only use made of it. I do not remember seeing water in any of the ditches on these lands after 1904. Since that season, I was in the valley almost continuously from the 1st of April to the latter part of June and I saw water in every one of the ditches and flowing out from every one of the dams that had been placed in the river, or flowing over the land from those places. I was on the property only occasionally, except in that year. Irrigation was not delayed much that year that I know of. The men were getting the water on by the first of April. Some places didn't need fixing very much to get the water out on the land.

When I saw the Harrell ditch in 1914 I saw new dirt thrown on the banks. I was sitting in the automobile and just stopped on the bank and looked up and down each way. Outside of the alfalfa fields at San Jacinto the irrigation, after the headgates and ditches were in shape, was done by two men for a number of years. They covered several thousand acres from Bird's Nest to Bore's Nest, about 13 miles. Their duties were to see that the water was kept out on the land until haying time. They put

dams in the sloughs to throw the water out on the land; they plowed furrows to get the water on the high ground. If something would happen so the water did not get out they would each year run furrows out. They done practically the same way on the Vineyard ranch, only there was generally a man who had a wife living at the Hubbard place and he would come down every few days and see that everything was all right. He had charge of the irrigation on the Hubbard and Vineyard ranches. It was about four miles between the two ranches. There were six or seven hundred acres I should judge on the Hubbard ranch. No one was living on the Vineyard ranch. Two men had their camp outfit and sometimes would stop there, sometimes at the Bore's Nest, sometimes at the Middle Stacks House, sometimes at the Bird's nest and sometimes at the San Jacinto. They moved their camp wherever their work required them to be. It is necessary now to keep the water running on the land to have crops at all. That is due to the system of irrigation that has been carried on there for forty years or more. Rye grass is a native grass. It is not cut for replanting or re-seeding. If it is cut at the proper time, I consider that it would be far superior to alfalfa. I think one ton would be worth two or three tons of alfalfa. The land colored green on Plaintiffs' Exhibit No. 18 lying between the new ditch and the old Harrell ditch on the Vineyard ranch is a part of the land I referred to that wasn't covered under the old ditch. In addition to that there is some of the land immediately under the fence and between

that and the old irrigated lands almost all the way down. It increases in width at one point in the southwest quarter of section 11, and at another place near the north half of section 11, where there is quite a strip of land that was not irrigated under the old ditch. I am reasonably certain it was not irrigated in 1909. The ditch was constructed before the fence and is just outside of the fence.

ROBERT W. ANDERSON, called as a witness on behalf of defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION:

I reside at Deeth, Elko County, Nevada, and have been there for 33 years on the 18th of this month. I have been in ranching and the stock business ever since I have been there. I first visited the Hubbard ranch in the fall of 1882. I was working for Mason & Bradley at the time and they had bought the ranch that spring. I was there only two or three days. Jake's Creek and Dry Creek flow through the Hubbard ranch and empty into the Salmon River at the lower end of the Vineyard ranch. They have it turned out at the upper end. In the fall of 1882 there were five or six big stacks of hay on the Hubbard ranch. Up until 1887 I was on the Hubbard ranch every fall. The conditions as far as I know were just the same in 1883, '84, '85 and '86 as in '82. I saw stacks of hay there. I moved over there in 1887 and stayed there three years. I went there in May. It was then under fence and had one quite good-sized ditch. I irrigated the ranch out of that ditch. It was

the same one that I saw there in 1882. Water was diverted out of Jake's Creek with a sagebrush and dirt dam. We just turned the water out and banked it up in low places a little, turning all out that the ditch would hold and flooded the meadow; turned out all there was in the creek. I had done irrigating on Mary's River prior to 1887. I hadn't done nothing else only irrigate and ride a little in the fall. I raised about 200 tons of hay that year. It was wild hay, red-top, blue-joint and such like. The only lands that were irrigated and not cut for hay was the sub-irrigated land below the meadow; not very much. In the fall of 1887 I built two dams up on Dry Creek and fenced a big field. That was above the old Jake's Creek field. In 1888 I plowed furrows out on each side and took all the water out, every drop of it, and irrigated that big field to make feed for cattle. I did not cut the grass. I had a solid dam in Dry Creek and took all the water out. I irrigated out of Jake's Creek below on Hubbard and took all the water out of that. I had two ditches in Dry Creek and two in Jake's Creek. I fixed the old ditch up in Jake's Creek and when I didn't need it on the meadow for a while I would turn it on this rye grass flat to make feed for cattle. Down below the meadow I had another dam to irrigate the pasture for feed for our horses and cattle. I didn't need any more dams; I had all the water out. I did the same irrigating in 1889. I irrigated this big pasture. It was used for winter feed for cattle. In 1888 I was down to the Vineyard ranch every few days. There was an old man there

irrigating all summer. I always crossed Jake's Creek between the Hubbard ranch and the Vineyard ranch on my trips to the Vineyard. There would be some water that had seeped back from where I was irrigating. This water was used on the Vineyard ranch. They had two ditches, one on each side. They had a big ditch up to the left of the road as you go down to the Vineyard. I think it was about seven feet wide around the hill there for a mile, I guess. They completed it I think in 1888. In the fall of 1888 they made it wider and it broke over in a lot of places. It carried the water across Jake's Creek to put it in the Jake's Creek ditch. After the first year I was there there must have been six or seven hundred acres under fence at the Hubbard. In 1889 I had I guess a hundred tons more than in 1887. I put up a little over 300 tons in 1889. During the time I was on the Hubbard place they finished that big ditch on the Vineyard. They had a lot of little ditches near the house, but I didn't pay any attention how many. Besides the meadow land they irrigated a big flat there on the east side of the river upon which there was rye grass and other wild grass. In 1898 I passed by there and went down to the Vineyard and stayed there two nights. I think it was in November. It looked to me like there was quite a bit more hay than in 1889. They had some pretty big stacks there. Sparks & Tinnin were the reputed owners of the Vineyard ranch. They had four cattle outfits and had thousands of cattle. They fed a few of them, the poorest ones, and put the others in these

big fields where they would feed. Some of them went to the desert in them days.

In my experience in irrigating we turn all the water out that we can get out of the creek; have been doing that for thirty odd years. I have got two ranches of my own and I always turn out all I can get, both places. I have been in business for myself about seventeen or eighteen years. My place is on the head of Mary's River, T Creek. I raise hay and feed, about the same way as I raised on the Hubbard when I was there. I turn out all the water I can get and leave it on as long as it stays. That is the way I have always irrigated because if we don't keep it there we don't get any hay. I know that by experience. You don't get much hay if you haven't got water to flood your meadows. If you take the water off it soon dries up. I generally take it off a week or ten days before haying. Before we get through it is so ripe that we can hardly stack it. I have irrigated every foot of the Nevada Land & Livestock Company's ranch and built most of the ditches. They have got 34 miles of solid fence and in some places it is half a mile wide and some places a mile and a half. They raise hay all the way down the stream. There is places they don't cut hay, but they irrigate it for their winter feed. There is no difference between the system of irrigation on that ranch and over on the Salmon River. You take all the water you can get in your ditch and keep it full. You then go along and scatter it. I irrigated steady on the Nevada Land & Livestock Company's property for six or

seven years and helped there for sixteen to nineteen years. I worked sixteen years at it. Part of the time I was running a cow outfit and I had men irrigating. I would go there once in a while and if they wasn't doing it right I would tell them how it was to be done. It was about 70 miles from my Humboldt ranch to the Hubbard and Vineyard ranches. I flood the land every year, every bit of it; fill the ditch full and flood it all. The same system of irrigation is carried on by me on the Humboldt as is carried on at the T Creek, Mary's River and the Hubbard. They all irrigate in Elko county the same way. I am familiar with ranches on Table Creek, North Fork, Star Valley, and all through that country. In Clover Valley they turn the water out on their land and flood it.

CROSS EXAMINATION:

In 1889 at the Hubbard ranch I suppose I cut 300 acres. We irrigated quite a lot more for pasture than what we cut for hay. That was true at the Vineyard ranch also. We figured that the pasture was worth about as much as hay. I don't believe I could tell from the maps where those ditches were located on Jake's Creek. I don't know much about maps; it is out of my line of business. One of the ditches from Jake's Creek run around that big rye grass flat and into the river below it. I don't know how long the ditches were. I couldn't tell how big they were. I was using most of the water at the Hubbard ranch. They had some water at the Vineyard ranch. I don't know how much land lay be-

tween the Salmon River and what is called the Harrell ditch on the Vineyard place, and the two ditches from Jake's Creek. I don't want to say anything I don't know anything about. We put water on sagebrush land and made meadow land out of it. I didn't have much to do with irrigating the alfalfa. I don't raise much grain. I have always been in the stock business, and the company I worked for never raised grain until the last two or three years when they put in a little grain. A shortage of water occurs every once in a while from the time the snow begins to melt until haying. This one year we had a little water and got it on a few patches; and with the water we had we flooded just the same all of the land we could flood. I guess the flooding system of irrigation is a habit; I don't know much about the expense. That is the only way we can make hay. Nobody can make wild hay without flooding. It makes more and better hay by keeping the water on the ground all the time while the hay is growing. Sometimes the water barely covers the land; sometimes it gets pretty deep, but we hardly ever turn it off from the time we put it on until we get ready to go haying. They all do the same. The water is running over the land all of the time, if we have got water enough in the river. The slough grass that grows in deep water ain't as good hay. The water doesn't stand on the land; it is running off. Turn it on and let it run right through it. Where the water runs there is red-top and such like and where it stands in deep sloughs there is only slough grass. Where it stands deep, maybe a foot

deep in these low places and just stands there, it makes slough grass. It ain't that deep where it is running. If you don't get no water you don't get no hay and that's a cinch.

RE-DIRECT EXAMINATION:

We figure that such winters as last winter we don't need to feed the cattle so much, but let them winter in those fields. We save the hay until the feed is covered up. Maybe next winter there will be two feet of snow and we will then use hay. We have had to have a heap more hay since the hard winter in 1889 and 1890. Now days we figure that if we ain't got no hay for the stock we ain't got no business having stock. In them days a man took chances. We feed the poorest ones and put the rest in the field and let them winter themselves. We irrigate the pastures to make grass for the cattle. We cut the slough grass for hay. Once in a while there is a hole in the slough that don't dry out, but if the water gets off of it we cut it all. We put the water in the big ditch and plowed a few furrows under the ditch and cut holes; then go on further and cut another and keep flooding the meadow in that way. The water goes into the ground and back into the creek. It is moving constantly except in the low places. I guess the seasons on the Salmon River are about the same as my ranch. It takes later water for alfalfa, but not as much water. We irrigate it and turn it off. The slough grass makes good hay if you cut it before it gets too high. Where it just flows over it all the time it makes the prettiest kind of wild hay. We don't have

any grass called tules. The best hay grows on the higher ground where the water runs over it all the time. There are places where it don't grow hay if the water is too deep. Slough grass is a kind of round hollow grass. It doesn't head into a seed. I have never seen any swamp grass that grows in the water under conditions as I described them. We have places where they turn the water on in the fall that makes a wide-bladed grass that we call self-rising grass. It isn't good for anything. I never tried the experiment of watering the lands and letting the water soak the ground thoroughly every ten days. In May the grass will grow for a few days without water, but if the ground is hot it won't grow, it will begin to ripen. It is the same in June. If you take the water off it seems to stop growing. In the last of June and July if you take the water off it goes to getting ripe.

L. A. NELSON, produced as a witness on behalf of defendant, being first duly sworn, testified as follows:

DIRECT EXAMINATION:

I reside at Oakley, Idaho. I went to the Salmon River section in 1880 as a cowboy for Jasper Harrell. I was there with the exception of one or two years up to 1892. I wintered part of the time at the Vineyard and one or two years at the Middle Stack, and the balance of the time on the Brown ranch in Idaho, just north of the state line. In 1880 when I went to the Hubbard and Vineyard ranches there was some irrigation down there from Jake's Creek. The water

that came down there was run out on the flat and later on there was a ditch come out of Salmon River that run across Jake's Creek. The flow of Jake's Creek that wasn't used on the Hubbard ranch was used on the Vineyard. On the Hubbard ranch I would say there was possibly a hundred acres being irrigated in 1880. They increased the amount of hay right along pretty regularly up to the time I left there, especially after 1889. After Mr. Anderson came onto the Hubbard ranch they made more ditches, or took a little more pains to irrigate the Vineyard. I suppose there must have been close to four or five hundred acres at the Vineyard that water was scattered over. In 1890 the ranchers began to cut their hay more extensively and to feed more than they had theretofore. I think Mr. Anderson was there about three years while I was in that section. For several years from the Bird's Nest on towards the north the water would overflow, especially in the sloughs and places up near the Bird's Nest. There was a ditch taken out there and one down about a mile below. It was turned out into the sloughs. And there was one ditch at the Middle Stacks. In the spring of the year before we started out with the cow outfit we would go out and haul manure and place it in the sloughs to back it up and turn it out in different places. The general system of irrigation was flooding such as has been explained by the witnesses who have before testified. That was the only system that was used in Nevada so far as I know. Besides the water taken out from Jake's

Creek the Vineyard ranch was irrigated from a ditch taken out up in the narrows of the canyon of Salmon River. I was there in January last winter and there was more, but not very much more, land being irrigated. We were irrigating quite a considerable of the Vineyard when I left. They figured on trying to cover the whole flat.

CROSS EXAMINATION:

We fed very few stock and we rode considerable during the winter time. In 1892 I think we put up 100 to 150 tons at the Middle Stacks. That was in either 1891 or '92. I hardly think there was any put up at the Bore's Nest nor at the San Jacinto ranch. I think there was more put up at the Vineyard. That field was used a great deal for pasture. They were just about completing the fence around the Big field down on the river when I was there. I mean from San Jacinto to the Bore's Nest. I couldn't tell how much land exactly we cut over at the Middle Stacks. We would just skip around here and there and pick out the best of it in spots. In some places we would possibly get two tons to the acre and other places it wouldn't be quite so heavy. There was some rye grass, though we didn't cut much of that. We cut more along close to the river where there was finer grass. We didn't consider the rye grass as good hay unless it was irrigated. The bottom lands were irrigated then more than the rye grass which was out further from the river and was used for pasture. I couldn't say what part of the Vineyard ranch was irrigated from Jake's Creek.

The majority of the land is below Jake's Creek so it would run over the whole thing if there was water enough. The water from Jake's Creek mingled with the water of Salmon River through the Salmon River ditch. That ditch came from the Salmon, went across Jake's Creek and around the field kind of on the outside, so that they could scatter it as much as possible over the field.

RE-DIRECT EXAMINATION:

We put up hay primarily for the saddle horses. The cattle used these sections of the valley along there for winter grazing. They simply used up during the winter such grasses as were grown or irrigated or produced within the valley. If we didn't have grazing enough, we would shove a bunch down on the desert. Each year we figured about the amount the grass in the valley would support during winter grazing.

MARK CONGER, duly called and sworn as a witness on behalf of defendant, testified as follows:

DIRECT EXAMINATION:

I reside at Wells, Nevada, and have been acquainted with the Salmon River section from 1901 to 1907, except 1902. My job was punching cattle. I made my headquarters at the Vineyard during most of the time. Henry Harris was in charge at the Vineyard. During those years we fed the cattle that needed feeding and what didn't we run on the pasture. The pasture was wild meadow grass and rye grass and the hay was the same. At the San Jacinto there was an alfalfa field on the west side, but no

other tame grass; the rest was all meadow land. There was always water on the meadows in irrigating time when I was there, and still further east between the alfalfa and the river water was always on the land during all of the years I was there. I mowed the hay over the Hubbard ranch and the Vineyard too. In 1901 to 1907 I should judge two or three hundred tons was produced on the Hubbard ranch and a similar amount on the Vineyard ranch.

GEORGE R. BOLDING, duly called and sworn as a witness on behalf of defendant, testified as follows:

DIRECT EXAMINATION:

I am fifty years old and reside at Wells, Nevada. I have resided in Elko County eighteen years next June. I went to the Salmon River country in 1897 to do carpenter work at San Jacinto. What they called the store is a stone building thirty-two feet by forty-eight feet. I was there and at the Bore's Nest until the next April. When I left there the first of April they were irrigating the land. The part that I saw was up north from what they called the Gorge to San Jacinto on the west side of the river. The ditches I crossed were all full of water. I was there in 1901 and 1902 with a freight team. The acreage at the ranch was being irrigated. It looked to me like there was about a section of land. The method of irrigation at the Vineyard, Hubbard, San Jacinto and Middle Stacks was by flooding the ground. I have been acquainted with other sections of the Salmon river at O'Neill's and Helsley's on the head-

waters above the Vineyard for 12 or 14 years. Their lands are about the same as at the Vineyard and Hubbard, only a little higher elevation. The method of irrigation at O'Neill's and Helsley's is by flooding the ground, the same as on the Salmon River. Helsley has a few acres in alfalfa, but I never saw any on the O'Neill place. The O'Neill ranch is about ten or twelve miles above the river, and Helsley's is about fifteen or eighteen miles, on Wilson Creek, a tributary of the Salmon River. I have built hay derricks for the last fifteen years over the east end of Elko County. I have had opportunity for observation at Clover Valley, Ruby Valley and Star Valley. I think they are a little higher than the Salmon River. The character of vegetation is about the same. The methods of irrigation are by flooding the ground the same as on the Salmon River side. I know of no other method of irrigating the wild grass lands. Where they have alfalfa or other crops they use different methods. Mr. Helsley had some alfalfa in when I first went out there. He has other tame grasses, clover and such as that.

CROSS EXAMINATION:

I judge that Halsley and his boys have a thousand or fifteen hundred acres. I think they irrigate them in the same way, by leaving the water running on the ground throughout the summer. The other ranches I referred to situated in Clover Valley and other places are cattle ranches and use the flooding system where one man looks after a large acreage. That system isn't used on grain and alfalfa, nor potatoes.

RE-DIRECT EXAMINATION:

The O'Neills have got a lot of land on Upper Sun Creek, Lower Sun Creek, Canyon Creek, Cottonwood Creek and Twin Meadows. The ranches extend several miles and are pretty nearly all irrigated. The creeks I have mentioned are tributaries of Salmon River. I have built them five or six hay derricks. I have heard the boys mention they average from six to eight thousand tons a year of wild hay. I never saw any alfalfa on the O'Neill's place.

RE-CROSS EXAMINATION:

I am unable to give any estimate from my own observations as to the amount of hay they cut.

HUGH McGUIRE, duly called and sworn as a witness on behalf of defendant, testified as follows:

DIRECT EXAMINATION:

I reside near Wells, Nevada. I was first over on the Salmon River valley from the Vineyard northerly to the Bore's Nest gorge in 1899. I was working for the Sparks-Harrell Company from then until 1906. I was engaged mostly in ditch and fence work and haying. C. H. Hewitt was superintendent at that time. He resides at Spring Dale, Arkansas. The first work I did was on what is called the Harrell ditch, or Big ditch, just across the river from San Jacinto. It was the ditch mentioned in Mr. McClellan's testimony. I worked about two weeks at that time and then we were changed off until after haying time. After that we went back on the ditch work again, on the Harrell ditch part of the time and on some other ditches. We did repair work on the

Bird's Nest ditch and some on the Rainwater ditch and on Moore's cut. Mr. Rainwater had charge of the work in 1900. Our work extended from after haying time until after it froze up in the fall. We did some work on the Rainwater ditch and repair work on several of the ditches and dams. The majority of the work was done on the Harrell ditch. We did some work at the Bird's Nest fixing up dams and such as that. In 1901 I commenced work on the Harrell ditch in April and worked until about June; then moved to Shoshone Creek and worked on a new ditch there until haying time. The work on the Harrell ditch was extending it further and cleaning out part of it that had not been quite completed. There was no land irrigated from that ditch north of the lane, but it was being irrigated between the Harrell ditch and the lane. In 1901 I should judge the ditch was extended about three-quarters of a mile. I had charge of the work myself from 1901 until 1906. I did ditch work at various places over the entire lands of the Sparks-Harrell Company. The work on the Shoshone Creek in 1901 was on a ditch on the north side of the creek, taken out from the slough I should judge a mile or a mile and a half above the ranch house. The ditch we opened up was about two miles long. I believe it was ten feet on the bottom and about eighteen inches deep. It was pretty well constructed in 1901. Later we had to go back and do a little more work but not much. I don't remember doing any other ditch work on the Shoshone ranch. The work on the Harrell ditch in 1901 was

with teams and scrapers. There was some hard-pan but no hard rock. I believe it was eight feet wide in the bottom and four feet deep. I don't remember the grade. We ordinarily employed three to five and six men and sometimes more in a crew. I don't remember of doing any ditch work in 1902. The telephone line was constructed through there in 1903. This line started at San Jacinto and extended to the H. D. ranch, about forty-five miles, and it was constructed by the company. The last work I remember doing on the Harrell ditch was the latter part of June or the first of July, 1904. It was from the end of the lane that runs east of the San Jacinto and for about a quarter of a mile around a little point. We simply opened up a new ditch for about a quarter of a mile. There was a quite a large run-off in the spring of 1904 and we started in in the spring repairing ditches where it was most needed. We did some work on the Gray ditch on what is called the island. I believe it was something like a couple of hundred yards. In 1905 we did work opening up what we called the Tunnel ditch on the Vineyard. That was after haying time in the fall of the year. We opened up something like a mile and a half or two miles of ditch. I believe it was eight feet wide in the bottom and eighteen inches deep. There was some soft rock. I was engaged in that work until about the 20th of December. We did some work after that on the old ditch at the Vineyard, putting in a head-gate and dam. I believe we enlarged it right at the mouth and put in a larger head-gate.

The bottom land in the country around San Jacinto in 1906 was practically all in cultivation or in hay or native grasses. The lands under the San Jacinto ditch and Warm Springs ditch were mostly raising grass or alfalfa.

CROSS EXAMINATION:

Mr. C. B. Moore had charge of the ditch work when I first went there, and after him Mr. H. S. Rainwater. They did work when I was working there and also when I wasn't with them. One spring I was irrigating alfalfa and wasn't with Mr. Rainwater. Two of us were looking after the ditches and irrigating on the San Jacinto ranch. Mr. Moore had charge of irrigating the native grasses and ditch work and other work that might come up there, and I was working under him. I had charge of it from the time I went there in June until fall, probably October. Mr. Rainwater was my immediate superior during the latter part of 1899 and until the fall of 1900. I succeeded him in the spring of 1901. The work on the Harrell ditch I testified about was being done at times when we were not engaged in other work. I do not know of any work being done on it in 1905 or 1906. I wasn't there all the time. I am quite positive no work was done. The work was extending the Harrell ditch from the lane to the old work. It took about two months. This was in 1901. The first extension after that was in 1904, when it was extended north across the lane about a quarter of a mile. This part I think was about eighteen inches to two feet deep. That part wasn't used for

irrigation that I know of while I was there. It was in that condition from 1904 to the end of 1906 when I left. The constructed part of the Harrell ditch was not enlarged after I went there, but part of it was not finished in the bottom and I finished taking that out and increased its capacity. We would go from one ditch to another and repair and fix up the dams and when there was nothing else to do would do some construction work. The lane I have referred to is the lane on the road from the Bridge ranch, as you call it, to San Jacinto. I commenced work on the tunnel ditch at the tunnel site. I did not work above that. The head of the ditch had not been built at that time. About a mile and a half of the ditch was built below the tunnel. The part I constructed wasn't used for irrigation while I was with the company. I left the company in 1908. I had something to do with putting up the hay at San Jacinto and between there and the Bore's Nest and what is known as the island. That did not include the Shoshone Creek ranch. I would rather not make any estimate as to just how many acres were cut. It was too big for me. About twelve men worked at haying in a regular crew, sometimes more and sometimes less. It averaged about forty-five or eighty days. We commenced cutting usually about the first of July to the 20th, and finished sometimes in September. We ran two machines generally; sometimes it was more, sometimes only one, but two was what we tried to keep in readiness. They were not running continuously; sometimes there was a storm that kept us from work.

I can't give any estimate of the number of tons that were put up. I had nothing to do with the measuring. The strip of land we cut was something like four or five miles. It wasn't a straight block of hay. There were patches that was cut and patches not fit to cut we left for pasture. On the land that I have referred to as being flooded or irrigated there was a bigger per cent of it left for pasture. There was a quite a little of the bottom land that was cut up by sloughs and channels and willows so that it couldn't be cut. That is not complete waste; it makes pasture, all of it. Of course there is some places along the banks, willows and under-brush and various kinds that doesn't make pasture. There was lots of places where there is willows that there is good grass. Most all of the sloughs do not grow anything that stock can feed on. I never paid much attention to the width of the part we cut and I might guess wrong. Some of it was in sagebrush; there was a little sagebrush down on the island and under that part of the Harrell ditch we built. It was not cleared off while I was there; some of it was irrigated and grass was growing on it when I left there. The water was turned out in a lateral. A man did not stay there continuously to see that it was spreading over the land; he was around there once in a while to see how it was working. If it wasn't spreading itself, his business was to spread it. Mr. Yost was in charge of the irrigation work most of the time while I was there. The first year it was another man, I think Catlin was his name. Yost had the fields from Bird's Nest to Bore's

Nest, except the San Jacinto alfalfa fields. The rancher looked after the alfalfa fields. I think the alfalfa received two irrigations to a crop. I think he commenced to irrigate the alfalfa about May; sometimes the frost set the alfalfa back. I have seen frost in the Salmon River country in June. It begins about September. I think on one occasion we had frost in July. At that time we had a snow storm in the whole country. I have seen snow in the latter part of September. A little garden was raised and a few potatoes; not enough for the ranch.

RE-DIRECT EXAMINATION:

The willows grow most of the way right along the river but not a very great distance on either side. Sometimes right at the bank of the river there are no willows. Grass and other vegetation grows among the willows and it was used for grazing. All together I worked on the Harrell ditch four different years from 1899; about a month or six weeks in the first year; about the same length of time the second year; about two months steady in the third year, and about three weeks the fourth year.

RE-CROSS EXAMINATION:

Alfalfa wastes if you throw it out on the ground worse than wild hay does. They didn't have racks for feeding ranch cattle. Where they fed milch cows and thoroughbreds they had mangers to feed them in, but for the range cattle they threw the hay in the sagebrush. So far as I know no one measured the hay or measured the acreage. I don't know how many stacks we put up. I remember one about 150 feet long; not any more as long as that.

ADAM PATTERSON, duly called and sworn as a witness on behalf of defendant, testified as follows:

DIRECT EXAMINATION:

I reside at Los Angeles. I received the ranch for the Vineyard Company the 1st of November, 1908. I went out on the properties first in August, 1908. When I had charge of the property we built the Harrell ditch from what is called the San Jacinto lane to a point north of there where the ditch makes a big bend. There had been a little work done at the San Jacinto lane, a distance of about 200 or 300 yards I should judge. We made the extension in the latter part of May or the first of June, 1909. About a quarter to a half mile of ditch was constructed at that time with teams and scrapers. We had ten teams. Mr. McClellan laid out the line. That part we constructed was about fourteen feet in the bottom and three feet deep. It wasn't quite as deep as that in a good portion of the ditch south of the San Jacinto lane. The ditch was extended to about the point where the canal crosses the center line of section 13 where it makes the bend.

CROSS EXAMINATION:

Our company purchased the property from the Sparks-Harrell Company in 1908, but we didn't receive it until the first of November. The work I speak of was done in the following year.

DON H. BARK, duly called and sworn as a witness on behalf of defendant, testified as follows:

DIRECT EXAMINATION:

I am an engineer for the United States Depart-

ment of Agriculture, and for six years have been carrying on a duty of water investigation in Idaho. We started the investigation about five years ago and carried it on principally by selecting fifteen and twenty-acre tracts of typical crops, consisting of different types of soil and different topography. These tracts have been scattered from St. Anthony to Weiser; some around Idaho Falls, some at Twin Falls, some on the Salmon River project, some on Upper Wood River and the Lower Wood River country. These tracts were all divided into three approximately equal parts. Some were grain, some alfalfa and potatoes, and different crops. We would use great care to select only such tracts in the beginning as were prepared in the same manner and thoroughly comparable throughout the entire area, and then each tract would be divided into three parts. The farmer would then be allowed to select one of these parts and to irrigate it in his usual manner at such times as had been his usual custom. One of my men was on the ground and each time carefully measured the amount used by the farmer; and the other two tracts were irrigated during the season by applying more water to one than the farmer used and less to the third. Everything was comparable with the exception of the amount of water applied, and it was comparatively easy in the fall to judge as to which tract had the best amount of water applied for the yield it produced. We had some 200 of these experiments, which would make 600 five-acre fields. For the past

five years I have had under my observation all of irrigated Idaho and this year part of Oregon as well. There are no other employees of the Department of Agriculture, to my knowledge, that have devoted their time so nearly exclusively to this type of work. I consider myself thoroughly familiar with the literature on the subject. I have been called upon to write three reports on the duty of water in Idaho and one describing the duty of water throughout the West, which is in the hands of the Washington authorities at this time. We have had a good man go through the library at Washington, which is carefully card-indexed and cross-indexed, to find all of the literature upon the subject which could have a bearing upon the duty of irrigation water, and we couldn't find very much. There is some published at the Utah experiment station under Dr. Widtsoe, where, probably outside of what we have got here in Idaho, there is more published than in any other place. My investigation includes reports published in foreign languages. I have become familiar with the literature I have had available. The general object of the investigation was the conservation of the water supply. I didn't find out how much water you could apply and raise five tons of alfalfa to the acre; I would study how little water you could apply and still raise five tons. In stating the ratio or relation, if any, that exists between the amount of water used on pasture lands and the amount of crops produced, I would say that up to a certain point the more water the more pasture. It doesn't differ ma-

terially from alfalfa, but it does differ very materially from potatoes and orchards and grain. You can very easily apply too much water to grains so that you will absolutely decrease the yield. In some cases where you apply three feet deep to grains you might raise less crop than if you didn't put any water on at all, but that isn't true of pasture. Up to a certain point the more water the more pasture, and it will require fully twice as much as for grains. I don't think I ever found the point in the pasture lands after which the application of more water would result in no increase, or an actual decrease, of the crop, because we never put water enough on. We have put about four and a half acre feet on upland pastures and we still got more pasture. Up to four or four and a half acre feet on average soil, I would state without qualification that the more water used the more crop would be produced. Whatever qualification there is will be based on something other than my actual experiments.

My study of the duty of water has led me to believe that you can very easily determine the approximate amount of water that is required for maximum crop production on the various crops on the various soils. And as some crops require more water than others, and as some crops have a tendency, namely, the alfalfa and the pastures, to increase in yield as the amount of water applied is increased, it has been made very plain to me that before you can determine how much water an irrigation project should have

a person must take into consideration the economic conditions which do and will surround that project. To illustrate: Five tons of alfalfa per acre might be produced with two and a half acre feet of water, if your land was very carefully prepared and you gave considerable attention to the irrigation. But if that alfalfa was only worth \$3.50 a ton the farmer might go broke if he could only have, say, two acre feet per acre for that alfalfa. But if he could get \$10.00 a ton for that alfalfa he could afford to put the expense into the levelling and into the attention to the water, to make the water go just as far as it possibly could. The same thing will hold true with grains or with orchards. In other words, a man can afford to pump water to extreme heights on orchards if he is getting a good price for his fruit, but he couldn't afford to pump and give lots of attention to his water on pasture ground that was far removed from a railroad.

By giving special attention to irrigation I mean having one irrigator for each forty acres.

It takes about twice as much water for pasture and alfalfa as it does for grain, orchards and potatoes. I don't know of any information, and I think if there was any I would know of it, that applies to a condition where the character of the land is an alluvial mountain meadow, at an elevation of from 5400 to 5600 feet, lying low along the banks of a stream, where the crop produced is natural grass used for pasture and the cutting of wild hay, and where the method of irrigation employed is by put-

ting dams in the river, or in the sloughs adjacent to the river, there being such sloughs leading from the river on to the land. None of my experiments have been conducted under such conditions, or conditions analagous thereto. Under those conditions I think there is no method by which the amount of water so diverted upon the land could be measured, because it gets a lot of it by capillary attraction, sub-irrigation laterally. It would be quite difficult in a flat country to measure the surface water. Water is measured under such conditions with a current meter. It is pretty hard with all those dams in there to get any accurate measurement at all; it is almost impossible. Where a flowing stream has a free "get-away" as they call it, you can measure that with a current meter, or with a weir if there is fall enough; but under those conditions it is almost impossible to get accurate measurements. Water that is overflowing land by means of a dam that raises the level of the water in the natural water course, could only be measured by getting the water for the whole project, by measuring the river where it entered this land and then by measuring a mile or so below and subtracting the difference. Of course there might be some coming in from the sides that you wouldn't get at.

CROSS EXAMINATION:

I have not made nearly so many experiments with regard to the use of water for pasture as for alfalfa. We have one pasture experiment between Caldwell and Nampa, and we had one for three years on the

Gooding experiment station. I have found from observation that pasture needs irrigation a little often-er than alfalfa. At the Gooding experiment station we had to irrigate our pasture about ten times a year. With ten irrigations a year there would probably be a little more soil moisture left at the end of the season than there was to start with. I am familiar with Bulletin No. 78, and approved it before it was published. On page 11 of that bulletin there was about five acre inches in it at the end of the season. Per cent. means about an acre inch in six feet of soil. It appears from this table that by applying 1.95 acre feet of water there was produced 5.3 tons of hay; by applying 2.6 acre feet of water there was produced 5.6 tons of hay. The use of 2.6 acre feet left in the soil more moisture by several per cent. than there was at the beginning of the season. I am inclined to think that the per cent. in the beginning of the season on that one particular plot is a little low. There might have been a little bit of error in the determination of it. Probably all of those plots were very nearly the same per cent. of moisture to start with in the spring. Sometimes there is a little error creeps in there because of an insufficient number of determinations over the field in the spring to get it absolutely accurate. It appears from plat 4 that by putting on 1.95 acre feet of water, which produced 5.3 tons of hay, we still had left at the end of the season more moisture than at the beginning. The water-taking qualifications of alfalfa and other grass crops can be developed; they will withstand considerable water.

If you keep on putting more water into the soil and leaving more in the soil in the fall than you had in the spring, the natural result will be, so far as the soil is concerned at least, to raise the ground water, and if you haven't an excellent drainage you will water-log the land and render it valueless in a very short time. That is the great problem on all irrigation projects. I have commenced an investigation of that problem at Twin Falls, on the south side of the Twin Falls tract. I have never had any tables showing the amount of moisture in the soil in a pasture at the beginning of a season and at the end of a season. I am quite sure there is a little error in that seventeen per cent., and it should be about the same as the others.

Plaintiffs thereupon offered in evidence page 11 of Bulletin 78, as Plaintiffs' Exhibit No. 31.

Mr. Bark (continuing) :

The grasses in the pastures in these experiments are Kentucky blue grass and white clover, meadow fescue, brome grass, red top, Italian rye grass and timothy. I never made any experiments with the native wild grasses found in the mountain meadows. From an economy of water standpoint and the proper method for the irrigation of pasture is what might be called frequent and light irrigations. Pasture is a shallow-rooted grass and you wouldn't need to soak it deep, but it needs it often on account of it being shallow-rooted and the surface dries out quickly. I have read the bulletins of Dr. John A. Widtsoe of the Logan Agricultural College; am not very familiar with

his work entitled "Principles of Irrigation Practice," published in 1914. Dr. Widtsoe is a recognized authority on the subject of irrigation. He is one of the leading authorities, but he goes pretty strong in some cases; at least I can't agree with him. The statement on page 23 of Dr. Widtsoe's book that "it is seldom possible to apply at one irrigation less than two inches and practically impossible to apply more than ten inches unless the soil be very gravelly. The practical limits are yet narrower. A light irrigation is about three inches, a heavy one about eight inches, and an average one from five to six inches," conforms to my experience. That is acre inches in depth. The irrigation will begin about April 1st and extend to September 30th, possibly one in October, or late in the fall. They would be evenly distributed throughout the summer, although a little closer during the hotter part of the season in June, July and August, particularly after the first of July. That method is adopted on pastures that are grazed continuously during the summer time so as to keep up the growth of grass. I don't think it would require as much water, although I don't pose as an expert in that particular line, to produce a growth that was to be grazed off after the summer range has been exhausted, as it would if you had stock upon it all the time. That is only a matter of reason; I have made no experiments. It usually takes a little less water where the altitude is higher; there isn't so much evaporation, cooler nights and the season is shorter. There are some investigations upon the amount of water re-

quired for raising natural grasses; I have never made any of that kind. As I got the question there was no expert knowledge as to how much it would take when the stuff was irrigated rather helter skelter by running it down these coulees and damming it up and running it sidewise. There are some experiments as to the amount of water required for raising what are called the natural grasses or wild hay grasses on bench land and farms, about the same as alfalfa or other pasture would be. I can get some from Colorado and a little of it in Wyoming. If the low lands should be watered in the same way that the uplands are watered, the grass would grow, but it would require sometimes on these lower lands so much more levelling. You have got to do an abnormal amount of levelling, and these old cattle men dont' like to do it. I haven't done any experimenting on that kind of land. We are starting on that kind in Southwestern Oregon now, but I am not very familiar with it yet. I have never seen any scientific literature upon the question of whether or not it is necessary to have the water flowing over or standing on wild hay land all the time. I feel very positive that the old fashioned rye grass itself would not make that necessary, but if they have been using that type of irrigation for years, a grass would naturally spring up there which would acclimate itself to that kind of a condition, and they would have to keep it going then in order to raise that particular kind of grass. Some grass will withstand lots more water, these slough grasses, than the rye grass and the timothy and these upland

grasses that we raise. In other words, timothy or brome grass would not grow there because there would be perhaps too much water for it, and yet the other grasses that had sprung up there probably make very good pasture and very good hay, rich in feeding value, and had sprung up there because that particular type likes those conditions and has become acclimated to it.

RE-DIRECT EXAMINATION:

If the lands were levelled up very nicely so that the water could be applied, a very light surface irrigation each time, I am quite positive that it would take less water in that case than it would in its natural state where the land was more or less rough and rolling and didn't have to be pulled up so much in the first case.

W. G. GREATHOUSE, duly called and sworn as a witness on behalf of defendant, testified as follows:
DIRECT EXAMINATION:

I reside at Elko, Nevada; am County Recorder and ex-officio Auditor of that county. Before going to Elko County I resided at Ruby Valley. I was engaged in ranching there. I became familiar with the lands of the defendant in this case in the summer of 1884. My first duty was riding after cattle for the four years I was there. In one outfit there would be some eighteen or twenty thousand cattle. I hayed at the Vineyard ranch in the summers of 1884, '85, '86 and '87. There were ditches on the Vineyard ranch in 1884. One must have come out of the Salmon River and one out of Jake's Creek. We put up about 100

tons on the Vineyard in 1884. We gradually put up more each year, but I don't know as I could determine the amount. I also put up hay at the Middle Stacks, which is ten or eleven miles down the river. There was an increase in the hay put up at the Middle Stacks between 1884 and 1887. That (indicating it) is Big Creek, on Defendant's Exhibit No. 10. I made a desert entry on land in Big Creek in 1885, in sections 11 and 12, being the southeast quarter of the northeast quarter, and the northeast quarter of the southeast quarter of section 11, and the south half of the northwest quarter and the north half of the southeast quarter, and the southwest quarter of the northeast quarter, and the northwest quarter of the southeast quarter of section 12. I proved up in 1888. I irrigated it by damming Big Creek and throwing the water out through ditches on the south side. As well as I can remember I could water the whole 320 acres of land. That land was all covered and the sagebrush also. It was all tillable land. There were ditches on the north side. There was a claim just above mine and it had ditches taken out on both sides, as well as I can remember. The claim belonging to Hannah Bartman, and the land under that entry was irrigated the same as my entry. We put in a rock and willow dam just below what they called the Cold Springs and threw the water out on the east side of the Shoshone, just above the Big Creek outlet. That was to cover the desert claim of Mr. Hewitt. The water was taken out and spread over the claim. A fellow by the name of Tesdell had a claim right south

of Hewitt's. I think the ditch that was taken out from Shoshone Creek was used to irrigate his land. Tinnin had a claim north of Hewitt's, as well as I remember. On Defendant's Exhibit No. 10 Hewitt's desert land claim must have been in part of section 10. Tesdell's was south on Shoshone Creek. Tinnin's was north, lying up the river on Shoshone Creek. The other claims adjoining mine was extended up towards the head-waters of Hannah's fork of Big Creek. Those desert claims were irrigated by the waters of Big Creek and Shoshone Creek. The waters of Big Creek were used to irrigate my land and the claims just above, and the waters of Shoshone Creek were used to irrigate the three desert entries I mentioned as being on Shoshone Creek. These desert land entries were irrigated in 1888. Big Creek is a tributary of Shoshone Creek. Prior to going to Elko I was ranching in Ruby Valley for three years. I raised crops on about a thousand acres. The system of irrigation was by flooding.

CROSS EXAMINATION:

I couldn't say how many acres there were in the Tinnin entry, the Tesdell entry or the Hewitt entry. It was my intention to irrigate 320 acres. We had to prove up on the land, and simply scattered the water to cover 320 acres. I was not raising any crop on any of it during the time I held it. Neither did Mr. Hewitt, Mr. Tesdell or Mr. Tinnin. Pretty nearly all of it was meadow land; part of it was covered with sagebrush. I did not clear the sagebrush. Tinnin's land was natural meadow and some sagebrush.

No improvements were made, except what I have described, and it was used for pasture. It was substantially in the same condition when I left it as when I found it, except some ditches or some dams had been put in. It was something similar to the kind of land that I found on the Salmon River and Middle Stacks and Vineyard. It was farmed and used in about the same way. I cut no hay on the Shoshone Creek ranches or on the Big Creek ranches. In 1887 we put up about 100 tons at the Middle Stacks. In 1887 at the Vineyard ranch we cut all the hay above the ranch house; some from the ranch house up toward the Hubbard; I couldn't say just how many acres. I don't think it was 300 acres; possibly 200 acres, but I won't say. On Middle Stacks we cut considerable area. The hay was not so good and of course we cut a larger area in order to get more hay. In the low lands the hay was heavy and up a little higher it wasn't so heavy. I don't think we cut as much as we did at the Vineyard ranch. I suppose it would run a ton or a ton and a half to the acre. We picked out the best spots; some rye grass. They irrigated the land, but you might say they didn't have any system. Bottom lands don't sub-irrigate from the river; they threw the water out of the river. Without dams in the river the bottom lands wouldn't sub-irrigate very much. I don't think you would have to make a well very deep to reach the soil water; possibly eight or ten feet deep. From my experience in that country it requires irrigation to produce crops; you have to flood it. When I did the

work over there on my desert land claim and took the water out I expected to create a pasture.

RE-DIRECT EXAMINATION:

When I say that irrigation was necessary for a crop I didn't mean simply that you get a larger crop by irrigation; I mean you have to irrigate it if you get a crop, absolutely. Before we commenced to irrigate it the land did not produce a crop. They were too wet for sagebrush and there was pretty good pasture on them, growing native grasses. In 1884 to 1887 I was in the Salmon River valley down to the Bore's Nest. This water was thrown out at that time above and some of it would naturally reach this land and perhaps at that time there could be some portions cut, but that which it did not reach didn't produce a crop. Wherever the water reached the land we could cut a crop of hay. Where the water didn't reach it there would not be what you would call a crop.

RE-CROSS EXAMINATION:

It was not being cut for hay before the irrigation system was put in. The dams were in above Middle Stacks when I first knew the country. I was not on the river before the dams were put in and I am in no position to compare the condition it was in before the dams were put in with what I saw afterwards. My judgment is drawn from the natural lay of the country and the lands water did not reach and the grasses it was producing at that time. I could readily tell in cutting the grass parts the land that the water did not reach at all. Any man who is fa-

miliar with the meadow lands and irrigation can absolutely tell the grounds that have been irrigated. If there is an acre or two or ten acres here that the water don't reach, you can readily see that the grasses are not there, and then the ground itself, the soil, will tell you whether the water has been applied. You can tell with your natural eye.

RE-DIRECT EXAMINATION:

There was a fellow by the name of Taylor Simpson to look after the water at the Middle Stacks. He irrigated the Vineyard ranch in 1884.

EXAMINATION BY THE COURT:

In places the banks of Salmon River are probably three or four feet high, but in the spring of the year when flood water comes very often the stream will overflow. The flood water ordinarily comes in June, and would run out into the sloughs. On my claim we did not take the water out until 1888 for the purpose of proving up. Later they undertook to produce a crop by the use of the water, but I never did. I disposed of the land soon after I got title to it and before I got patent.

MR. BOYD: Possibly at this time, your Honor, I can put in a stipulation that has been agreed to by both parties, in connection with Exhibit No. 1, Defendant's Exhibit No. 1. The lands owned by the defendant company in the State of Nevada—It is stipulated and agreed between the attorneys for the plaintiffs and ourselves that the date of the deed to these lands from the Sparks-Harrell Company to the defendant company here is the 31st day of October,

1908, and it is further agreed, for the purpose of the record, that these deeds, or this deed, contains the following provisions:

“Together with its right, title and interest in all water, water rights, water locations and canals or ditches used, or intended to be used, to irrigate said lands or any part thereof.”

Has Exhibit 10 been admitted?

THE COURT: Yes.

MR. BOYD: Then it is stipulated, so far as Exhibit No. 10 is concerned, that the lands shown on there as belonging to the defendant company, and which are surrounded by the rather heavy slashed line, are lands conveyed to the defendant company from its predecessor, the Sparks-Harrell Company, and that the deeds for these lands contain the same provision as to the water rights.

THE COURT: That is the deed from the Sparks-Harrell Company to you?

MR. BOYD: To the defendant company here. The deed to these lands bears date the 27th day of July, 1910. The actual deeds, the dates of the deeds. And, as I say, the defendant company is the owner of these lands as shown by these deeds and by the abstracts. We intend by the stipulation to cover all the lands shown on this map which are covered by the heavy slashed lines around the sections or quarter sections, and I think that will be possibly sufficient for identification.

THE COURT: That is on Defendant's Exhibit 10?

MR. BOYD: Yes, Defendant's Exhibit 10. There are quite a large number of segregated tracts on this map. We may desire possibly later, so far as these lands are concerned, to read the descriptions into the record, if there is any question about the amount to be covered.

THE COURT: That is, there are some tracts upon the map which have not been testified to as yet?

MR. BOYD: Yes.

THE COURT: You have had testimony as to only five tracts?

MR. BOYD: Yes, there are some tracts on the map that we don't claim any water or any irrigation of. But all the water claimed by us is within the tracts shown on the map.

JAMES B. STEELE, duly called and sworn as a witness on behalf of defendant, testified as follows:

DIRECT EXAMINATION:

I reside at Rogerson, Twin Falls County. The first work I done on the San Jacinto ranch was in 1894, putting up the alfalfa crop. There was about forty acres located on the west side of the land, just opposite the ranch house. We were there haying on the river five or six weeks, as near as I remember it. That piece of alfalfa lying west of the house and the land lying down the river on the east side of the valley, towards the Bore's Nest, was in cultivation and being irrigated at that time. I was there the next time in 1898 and was haying at the Middle Stacks about five or six weeks. When I got done at the Middle Stacks they sent me to the Bore's Nest and I

mowed a field down there. All told, I was there probably a month or six weeks. I worked for them continuously from the haying in 1898 until June, 1901. All of this entire section that I have spoken of below San Jacinto and to the Bore's Nest was under cultivation during those years. Mr. Moore, who is dead, had charge of the irrigation. I was at the lands of the defendant on Big Creek on the Idaho side in 1901 for the first time. The last time I was there was two years ago this coming May. The land in section 7, on Defendant's Exhibit 10, was fenced at that time. There was some ditches taken out there and the water was running in them at the time. As near as I remember it there was various ditches taken out of the streams as you went down from the upper end of the valley. When I was there two years ago this coming May there were ditches running and the land was being irrigated. If my memory serves me, the ditches were in about the same places as in 1900. They were old dams that were in the creek.

CROSS EXAMINATION:

I raked the alfalfa crop in 1894 in July. It was the first crop of the season. I don't know whether there was a second crop or not. It was not cut while I was there. I left sometime the latter part of August. We cut some hay below the house on the San Jacinto ranch on both sides of the river. The island is on the east side and we cut on both sides of the west channel.

We cut nothing east of the island that year. I don't know how many acres we cut over or how many

tons we put up. In 1898 we put up hay at the Middle Stacks and on the Bore's Nest field. I don't know how many acres we cut or how many tons we put up. I worked there all told about a month or six weeks. Mr. Moore had an outfit of several men. When I went to the Bore's Nest there was three of us there at that time. We didn't stack the hay; we just rounded it up in piles and took stakes and stuck them in the top of it so that the cows would find it in the winter time.

L. W. BEASON, called as a witness on behalf of defendant, and duly sworn, testified as follows:

DIRECT EXAMINATION:

I will be twenty-seven years old next month. I am an engineer and was graduated from the Massachusetts Institute of Technology with the degree of Bachelor of Science, in June, 1913. I have been engaged in surveying construction work and irrigation work ever since graduating. I made measurements of the ditches constructed on the defendant's property at different times in 1914. I have the notes from which I can give the capacities of those ditches in second feet. Starting with the ditches at the upper parts of the tracts in question, the first ditch is diverted from Dry Creek in the southwest quarter of the northwest quarter of section 11, 47 north, 63 east. It is seven feet and a half wide on top, is V shaped, and the deepest place is a foot and a half deep. The grade is four feet per thousand feet of length. The length of the ditch is 7,000 feet, and the capacity is 3.9 second feet. The next ditch is diverted from

Jake's Creek in the southwest quarter of the southwest quarter of section 3, 43 north, 63 east. It is 3 feet wide and 1.7 feet deep. The grade is two and a half feet per thousand feet of length. It is 5,300 feet long, and the capacity is 5.7 second feet. There are two ditches diverted from Jake's Creek at the upper end of the Vineyard ranch which I am unable to compute the capacity of because there are no straight sections in them anywhere. The next ditch is known as the Harrell ditch, on the Vineyard ranch. It is diverted from the Salmon River in the northwest quarter of the northeast quarter of section 16, 44 north, 63 east. The top width is 9 feet; bottom width 4 feet; depth 2 feet, and the grade is a foot and a half to the thousand. The length where it crosses Jake's Creek is 4,400 feet, and the capacity is 15.3 second feet. The next ditch, known as the Bird's Nest ditch, is diverted from Salmon River in the southeast quarter of the northeast quarter of section 20, 45 north, 64 east. The top width is $22\frac{1}{2}$ feet, bottom width $15\frac{1}{2}$ feet; depth 4 feet; grade 3 feet per thousand. The length of the ditch is 19,700 feet. This ditch will carry as much as 150 second feet without overflowing the banks, but a ditch of that size and grade I don't think would carry that much water without washing. I think it will carry $68\frac{1}{2}$ second feet safely. The next ditch is known as the Harrell ditch on the San Jacinto ranch and is diverted in the southwest quarter of the southeast quarter of section 9, 45 north, 64 east. The top width is $10\frac{1}{2}$ feet; bottom width 6 feet; average depth is 3.2 feet,

and the grade is one foot per thousand. The length is 3.4 miles, and the capacity is $19\frac{1}{2}$ second feet. This is not the same ditch as the Big ditch, or the Harrell ditch, sometimes referred to as the Harrell ditch. The Big ditch is diverted in section 34, 46 north, 64 east. The top width is 21 feet, bottom width 16 feet; depth 5 feet; average grade .56 of a foot per thousand. The length is 8.7 miles and the capacity is 90 second feet. The next ditch is the Middle ditch at San Jacinto, diverted from the river in the southeast quarter of the northeast quarter of section 27, 46 north, 64 east; the top width is 10 feet; bottom width 6 feet; depth $2\frac{1}{2}$ feet; grade one foot per thousand; length 4.3 miles, and the capacity is 24 second feet. The next ditch is the Warm Springs ditch from the spring in the northeast quarter of the southeast quarter of section 22, 46 north, 64 east. The top width is 9 feet, bottom width 6 feet, depth 2.8 feet; grade half a foot per thousand; length $1\frac{3}{4}$ miles, and the capacity is 6.6 second feet. The next is the Rainwater ditch, heading in the northeast quarter of the northwest quarter of section 23, 46 north, 64 east. The top width is 18 feet; bottom width 15 feet; depth $3\frac{1}{2}$ feet; grade $3\frac{1}{2}$ feet per thousand; length 1.2 miles, and the capacity is 66 second feet. The next was known as the Gray ditch, heading in the northwest quarter of the northeast quarter of section 11, 46 north, 64 east. The top width is 11.4 feet, bottom width 8 feet, depth 1 foot, grade 1 foot per thousand, length 6,000 feet, and the capacity is 6.3 second feet. The next is the Fisher

ditch, and the present head of it is in the northwest quarter of the northeast quarter of section 14, 46 north, 64 east. The top width is 9.3 feet, bottom width 3.6 feet, depth 2.5 feet, grade $2\frac{1}{2}$ feet per thousand, length $2\frac{1}{2}$ miles, and the capacity is 21.3 second feet. The next is known as the East Bore's Nest ditch, diverted in the northeast quarter of the southeast quarter of section 35, 47 north, 64 east. Top width is 9 feet, bottom width 5 feet, depth 2 feet, grade a foot and a half per thousand, length two and a quarter miles, and the capacity is 10.8 second feet. The next is known as the Bridge ranch ditch, diverted from Shoshone Creek in the southeast quarter of the southwest quarter of section 17, 47 north, 65 east. Top width is 15 feet, bottom width 7 feet, depth 3.6 feet, grade half a foot per thousand, length 2.4 miles, capacity 14.7 second feet. The next ditch is up in the Shoshone Basin and is diverted from Shoshone Creek in the northeast quarter of the northeast quarter of section 3, township 16 south, range 17 east, in the State of Idaho. The top width is 6 feet, bottom width 3 feet, depth 2 feet, grade a half a foot per thousand, length 1.6 miles, capacity 5 second feet. This ditch appears on Exhibit 10. The next ditch is diverted in the southwest quarter of the southwest quarter of section 11, 16 south, 17 east, from Big creek in the State of Idaho. The top width is 7 feet, bottom width 4 feet, depth one and one-half feet, grade 1 foot per thousand, length 1.8 miles, capacity 4 second feet. The next ditch is diverted from Trout Creek in the southeast quarter of the northeast quarter of section

3, 44 north, 65 east. The top width is 4 feet, bottom width 2 feet, depth 1 foot, grade 4 feet per thousand, length 1 mile, and the capacity is 1.2 second feet. The total capacity of all of those ditches is 362.8 second feet. This does not include all of the ditches that were constructed prior to 1904. There is a lot of places along these various streams where the water has been turned out, but did not appear to have been used recently. I left those out, and wherever there were dams in the streams to turn the water out over the meadow, of course there are a lot of those, there is no way to get at the capacity. I haven't given the capacity of any of those sloughs or diversions not carried through ditches.

I have had made under my supervision maps showing the lands belonging to the defendant on Salmon River and its tributaries that received benefit from irrigation. Defendant's Exhibit No. 7 is one of those maps. I was engaged about eight months continuously in making up maps of that character. I have checked up the work and can say of my own knowledge that these plats correctly represent the areas that were benefited by irrigation. Defendant's Exhibit No. 7 includes the lands on Trout Creek, a little east over the mountain from San Jacinto, and about 12 miles by road from the High Line ditch. I went onto the lands myself to make observations for the purpose of determining how much of those lands received benefits from irrigation. On Defendant's Exhibit 7 there is an area colored dark green which is good hay land. There are other areas colored a light-

er green, which I classed as first-class pasture. The areas are marked on the exhibit. There is no land in the colored portions that does not receive benefits from irrigation.

Defendant's Exhibit No. 7 was thereupon offered and received in evidence.

Mr. Beason (continuing):

Defendant's Exhibit No. 11 covers all of the Hubbard ranch, all of the Vineyard ranch, and the Salmon River valley or canyon, above Contact, down to the Bird's Nest. That was made up in the same way as Defendant's Exhibit No. 7. On Defendant's Exhibit No. 11 the hay land is colored dark green and the pasture land is colored light green. There are no lands in those colors that do not receive benefits from irrigation. The colored areas are drawn to a scale and the areas are marked. The total acreage as shown in dark green on Defendant's Exhibit No. 11 is 866.7 acres; the total acreage shown in light green, or pasturage, is 1728.3 acres.

Defendant's Exhibit No. 11 was thereupon offered and received in evidence.

Mr. Beason (continuing):

Defendant's Exhibit No. 12 covers the Salmon River from the Bird's Nest to the Bore's Nest, including the lower end of Trout Creek. The dark green shows hay lands; the light green shows pasture lands. The yellow shows lands that had been planted in grain at the time we made the survey. The orange shows land that had been seeded to timothy. The lands colored gray I have called second-class pasture.

As first-class pasture I have included land upon which a very heavy growth of grass grows, probably with scattering willows in places, and the willows may be fairly thick. As second-class pasture I have classed that land upon which grass does not grow so heavy; it is more scattering. Usually most of that second-class pasture has a scattering growth of wheat grass on it. The irrigation upon the two classes of pasture is practically the same. The area of the first-class pasture land on Defendant's Exhibit No. 12 is 2,501.2 acres; second-class pasture 1,073.7 acres; hay land 1,766.2 acres; grain, 1,481.7 acres; seeded to timothy, 242.6 acres. The plowed land is not colored. There are none of the lands marked as meadow lands, or first or second-class pasture lands, on Defendant's Exhibit 12, that have not received the benefits of irrigation. Last fall we measured the plowed land that is not shown on Defendant's Exhibit 12 and there were 1,205.4 acres. 281½ acres of this was under the Big ditch, south of the San Jacinto lane. The remainder of the plowed land is all under the Big ditch.

Defendant's Exhibit No. 12 was thereupon offered and received in evidence.

Mr. Beason (continuing) :

Defendant's Exhibit No. 13 was prepared in the same way as the other exhibits and includes part of the lands known as the Bridge ranch. The hay land is shown in dark green and the pasture land in light green and the grain land is shown in yellow. There are 428 acres of pasture lands, 124.8 acres of hay

land. The total land in grain is 27.3 acres. Defendant's Exhibit No. 14 was made in the same way as the others, by actual survey. The lands on Nall Creek are shown on that exhibit. These lands are a little northeast of the Hubbard ranch. Nall Creek is a tributary of Jake's Creek. These lands are about 7 or 8 miles from Jake's Creek. The dark green is hay land and the light green is pasture land. There are 53.4 acres of hay land, 104.3 acres of pasture land. Defendant's Exhibit No. 15 was prepared in the same way, from actual surveys of the irrigated lands shown upon that plat. These lands are up in what is known as the Shoshone Basin, in Idaho, just across the state line. This is Big Creek flowing down through sections 10, 11 and 12, 16 south, 18 east. Shoshone Creek flows down the left side of the map, almost due south. It is labelled Shoshone Creek. The dark green denotes hay land, and the light green denotes pasture land. There are some yellow spots that denote grain land that doesn't belong to the Company. There is 162 acres of pasture in sections 23 and 24, 15 south, 18 east, and 103 acres of pasture in sections 26, 27, 34 and 35, township 15 south, range 17 east. There is 41.7 acres in sections 3 and 10, 16 south, 17 east, and 528 acres in sections 10, 15, 11 and 22, township 16, range 17 east. On Big Creek there is 127 acres of hay land, 35.3 acres of pasture land in sections 11 and 12, 16 south, 17 east, and 44.7 acres of pasture in sections 7 and 8, 16 south, 18 east.

Defendant's Exhibits No. 13, No. 14 and No. 15 were thereupon offered and received in evidence.

CROSS EXAMINATION:

The first time I worked for the company was in the summer of 1910. My father is superintendent of the ranch. The ditches that I have referred to and given the capacity of were those that were in existence in 1904 according to the testimony that I have heard given here. Of course the Big ditch has been worked on since 1904 and extended in length. I took the cross section of the Big ditch near the head of it, and the capacity is based on the cross section and grade I took at that point. I made current meter observations in the Big ditch, the Harrell ditch on the San Jacinto ranch, the Bird's Nest ditch, the Rainwater ditch, Warm Springs ditch, Fisher ditch and the Bridge ditch in October, 1914. The capacities I have given are not based on those current meter measurements. I haven't the current meter measurements with me in the court room, but I can produce them. The land extending from the lower part of the dark green area on Defendant's Exhibit No. 11, shown as a narrow strip of green, was surveyed and the area computed. In the place where the creek crosses the lower part of the section line of section 36, 45 north, 63 east, I think we took the width of the channel and added that to the area of pasture land. We did not include the width of the river channel in all measurements. We platted the land and then measured the area on the map with a planimeter, and from that calculated the acreage. The map is drawn to a scale at the place to which you call my attention, and the green represents land that has got good grass

growing on it. At that place it is four or five hundred feet wide and the river channel is included. I located the exterior edge of the grass line on both sides of the river, and platted it on the map. Then I measured the area on the map with the planimeter. I got the width of the irregular light green strip which represents pasture lands at the various points where the width varies. We took data from which that width can be obtained, and made measurements. We didn't actually measure the width at any point. We located the outside edge of that pasture land all along the river with reference to the Government corners, platted it to scale, and measured the area on the map in square inches, the map being platted to a scale; so many square inches of area on there represent so many acres of land. We measured the area of that land in square inches, and from that figured the acreage. The number of places in each section that we took those measurements varies all along; at each sharp turn there has been a measurement made from a point known as a transit point. Here is a place in the northwest quarter of the southwest quarter of section 31, marked transit point 74. That indicates that the transit man set his instrument at that point and measured the distance to a point on the base line, which had been previously chained out and tied to a government section corner. The point you indicate would be about 600 feet on his transit. When the transit man had measured the distance from his transit to the previously located point on the base line the rod-man on each side of the river gave

him readings with the rods, which gave him his distance from the instrument to a particular point on the edge of the pasture land. The man who was following the river channel gave the transit man readings at each important turn of the river. The transit man for each one of these points recorded the distance and bearings from his instrument to the point where the rod man was giving him a reading. This method isn't strictly accurate; the degree of accuracy depends upon the number of times that you make observations.

There is one ditch between what is colored green on the Vineyard ranch in section 11 and where the river is shown as passing out of the map in section 21. It is diverted from the left side of the river in the southeast quarter of the northeast quarter of section 20, 45 north, 64 east. It is about five miles from the dark green in section 11, to the head of that ditch. Throughout that entire distance there is not a single ditch nor constructed irrigation works of any kind. That strip was colored green because it has got good pasture grass on it. Not all of the green represents irrigated land. I think that is the longest strip of which it is true that the green does not represent irrigated lands. There is a narrow place along the Shoshone Creek. I don't think of any such cases from the Bird's Nest to San Jacinto. The strip referred to below the Vineyard ranch is not entirely covered by willows. There are scattering willows along there. There are scattering willows and large

bunches of willows all along the river. They are included in the pasture lands.

I didn't measure the area under the various ditches that I referred to, so I cannot give the number of acres under the several ditches. In determining the capacity of the ditches I measured from the highest point on the lower bank to the average bottom of the ditch. I found that the ditches had an uneven bottom. I run a profile, about a thousand feet along each ditch, and took the average grade. To get the cross section I took the surveyor's level near the point of diversion in each case. The capacity of the ditch from the point of diversion to the first diversion out on the land is about the same in these sections. All those old ditches vary more or less in cross sections and I took what I thought would give a fair capacity. The average grade and the smallest cross section determines the capacity of the ditch. I took the smallest cross section between the point of diversion and the first diversion onto the land. I didn't take any sections after any water had been turned out on the land.

RE-DIRECT EXAMINATION:

In selecting a place to make measurements I wanted to get a section by which I could determine the maximum amount of water which could be diverted from the river into the ditch. If the ditch varied, I would take the smallest section I could find. In some of the ditches it don't vary, but wherever it did vary I took the smallest section. If I had a little time I could go through these various exhibits and select

out all of the areas and compute the number of acres included on all of the lands like the one to which my attention has been called between the Vineyard ranch and the Bird's Nest, upon which there are no dams or constructed diversion works.

MR. NEBEKER: I think I will withdraw the withdraw the witness at this time, if the Court please, that is, I would like to have an opportunity to have the matter cleared up in the record.

THE COURT: Before he does that:

THE COURT:

Q. You simply surveyed these lands in order to make these plats, you selected the outer edges of the tracts that grew grass or pasture, did you?

A. Yes, sir.

Q. Without any regard to whether or not it was irrigated?

A. Yes.

Q. You didn't make any examination to see whether it was irrigated or not? You simply took the place where grass was growing?

A. Yes.

Q. How can you tell, then, what parts have been irrigated and what have not. You answered counsel on cross-examination that you made no calculation or computation of the amount under the ditches. Do you know what land is under the ditches?

A. I can pick them out on the map.

Q. You didn't make the survey of them?

A. I didn't measure the area of them.

Q. I hardly see how you are going to do this, then.

THE COURT: Mr. Nebeker, I hardly see how he is going to do this if he didn't measure the area.

MR. NEBEKER: I didn't understand that point, your Honor.

THE COURT: He states that he didn't measure the areas under the ditch. I understood him to answer originally, and I think he did so answer, that these colorings upon this map showed the land which had been benefited by irrigation. Now, as to that he can't say what lands are susceptible to irrigation from the ditches, for he never made any survey.

MR. NEBEKER: I doubt if the witness intended to say that. I would like to inquire.

THE COURT: Isn't that what you meant to say, sir?

A. I don't believe I understood you right.

THE COURT:

Q. Did you ever make a survey of the lands to see what ones are under the ditches, susceptible of irrigation from the ditches?

A. All of these surveys show the lands under the ditches.

Q. How do they?

A. You can pick them out on the map.

MR. NEBEKER:

Q. Are the ditches shown upon these exhibits?

A. The ditches and the lands are shown on the exhibits.

THE COURT:

Q. But they are not contour maps, are they?

A. No.

Q. You can't tell whether the land is irrigable from a ditch unless you know the height of the ditch and the land. How could one of us, who were not present when this data was gathered, how could we take one of these maps and determine what lands are under the ditch and what are not under the ditch. Those ditches might be lower in altitude than any of the lands adjacent.

A. I think I can pick the areas out myself that are under the ditch.

Q. How can you do that?

A. Because I have been on the land and seen it, and I know what land is irrigated from each ditch.

Q. You would simply do that from memory?

A. Yes.

Q. You have made no survey of it, apparently?

A. Not actually to determine the amount of land under the ditch.

THE COURT: That is all.

MR. NEBEKER: That is all.

THE COURT: There are one or two further questions that I desire to ask this witness.

THE COURT:

Q. After having the cross-section of these ditches and what you call the average grade, how did you make a calculation as to the capacity of the ditch available capacity?

A. There is a formula given in the hand book of the American civil engineers, hand book, by which such capacities can be calculated.

Q. That depends somewhat upon the nature of the ditch, does it not?

A. Yes, on the condition of the channel, whether it is grown up with grass or whether the soil is in good condition or soil in poor condition.

Q. After selecting the point where you would make your cross-section, how did you get this average grade? Did you take the grade of the ditch throughout its entire length.

A. No, I took the readings of the elevation of the bottom of the ditch for points 100 feet apart, beginning two or three hundred feet above the section, running usually about 1000 feet to a point below the section.

Q. And you in that way would get the capacity of the ditch at that particular point?

A. Yes.

THE COURT: That is all.

JOSEPH JENSON, duly called and sworn as a witness on behalf of defendant, testified as follows:
DIRECT EXAMINATION:

I reside at Salt Lake City. I took my degree from Harvard University in 1902. Before graduating I had been teaching for a number of years at the Agricultural College of Utah, and I continued that work thereafter for some years. I had charge of the engineering department, including courses in civil, mechanical and irrigation engineering, until the spring of 1907, and then I went into practical work as a civil engineer. Since that time I have carried on my profession almost entirely within the State of Utah,

along the lines of reservoir, dam and canal construction and work incident to irrigation projects. I have constructed reservoirs for the State of Utah and for private parties. I was engaged in that work for the State of Utah for seven years. I have had to report on a number of irrigation projects as to their feasibility. I have been associated in experimental work in connection with irrigation subjects at the Agricultural College and I have done considerable farmers' institute work along that line. I have not studied soils as an element of fertility particularly. I have studied soils and earth material with respect to their permeability and with respect to seepage conditions and so on. I have devoted particular attention to the movement of underground and percolating water. I believe that I have read the standard recent literature on the subject. I visited the San Jacinto ranch the first time last November. My purpose was to observe the drainage and seepage conditions. My attention was directed more particularly to the land under the High Line canal. I was there one week. I had two lines of pits dug across the fields below the High Line canal, along the line of the greatest declivity between the High Line canal and the Salmon River bottom. The distance between these points was in the neighborhood of 9,000 feet. My purpose was to examine the condition of the sub-soil with the view of determining the seepage properties of that area between the canal and the Salmon River bottom. I had a profile line surveyed along the line of pits, but I didn't do it personally. The bottom of the

High Line canal on the north line of pits is 95 feet above the surface of the water in the river. There is a slope there of about 95 feet in the 9,000 feet of distance. It is gradual for a distance, then it is a more abrupt incline down on to the river bottom and then it is nearly level for some distance. I found in every pit along the line coarse sand and gravel underlying the surface sub-soil. We penetrated this from four to six feet as a rule. In the pits nearest to the High Line canal we found no gravel or sand but a sort of pumice stone structure, virtually a lava ash that has been cemented. We struck that about 20 feet below the surface. Above the canal this formation appeared two or three feet from the surface. I assumed a line as determined by this pit below the canal and the pits that we dug above the canal, and extended that line to the elevation of the river bottom. On this assumption the cemented material would extend away under the river bottom. This pumacious formation itself is porous, but the grains are very fine and the movement of water through material of that kind depends upon the size of the particles of which the material is formed. The movement of water would be very slow, practically negligible. Immediately above that formation there was coarse sand and gravel which is comparatively very permeable to water. From the investigation that I made there I formed the conclusion that that portion of the water thrown upon the ground for irrigation purposes between the canal and the river bottom would find its way readily to the river itself. I made a computation

according to the formulas as determined by experimentation on this subject, taking into account the slope and the nature of the ground through which the water would pass, and determined that water from the upper portions of the field would reach the river at the rate of about ten miles in one year. That is equivalent to 145 feet a day, very nearly.

I made observations about the place where the gauging station is located below the confluence of Shoshone Creek with Salmon River for the purpose of ascertaining the nature of the formation there. The subsoil was coarse sand and gravel for a distance down of about six feet. We struck the water at about two feet. There is undoubtedly a sub-flow there; it would be impossible to say how much, but I made a computation which showed that the sub-flow there should be at the rate of one second foot, or about that, for each four feet of depth of that soil across the gap of the canyon. This sub-flow would follow the surface stream in the same general direction down the canyon. Any barrier that would cut off the sub-flow would bring it to the surface. If the reservoir dam does that, it would certainly find its way into the reservoir.

During the same period that I was out there last fall and again last week, I observed the character of the formation immediately above the plaintiffs' dam. It consists of a series of layers of lava, some eighteen or twenty, probably more, distinct flows of lava. There is a very distinct line of separation, some debris and burnt material, ash, separating those

several flows. The same character of formation is at either end of the dam. It extends as far below the dam as I could see. I examined it for a distance of two or three miles. I followed the bottom of the canyon from the foot of the dam a distance of about two miles down the canyon. From my observations I formed the conclusion that the water in the channel below the dam comes around the ends of the dam through this lava rock. I observed markings on the rocks in the channel and along the sides of the channel, consisting of a fine silt deposit. There were marks indicating that the water in the reservoir had been up possibly 25 or 30 feet higher than when I was there. The difference in elevation of the water in the dam would certainly have something to do with the amount of water flowing around the ends of the dam and into the channel. In the first instance we have a greater area of those layers of lava that I have described exposed to the flow of the water, and at the lower depths an increased pressure, both of which would tend to increase the flow. I would say that the higher the water in the dam, the more would be the flow around the ends of the dam.

As to whether there is in lava rock customarily, in the joints and fissures, substances such as clay, that prevent the flow of water through it, is a condition which I have never observed and never heard of it until it was testified to here the other day. Assuming that there was such a thing as clay in the fissures, joint planes or other spaces, I would say that the flow of the water through those spaces would not have any

tendency to block them up so that the water wouldn't continue to flow. The matter is pervious to begin with; the wetting of it does not increase its density any; the gross porosity remains the same, even though the bulk of the material may swell some.

While on the San Jacinto ranch I observed that the water table was practically at the surface of the land there. In the fall of the year when I was there it was within about two feet. There is alkali in the soil there, and where that is so and where the land is located with reference to the water table as that land is, flooding of the land is necessary. Unless that is done the alkali will rise to the surface and kill any kind of vegetation that grows upon that class of land. So far as I know, where the surface of the land lies so near the water table, there is no method of irrigating such lands as that for the production of such crops as are grown on those lands, except by the flooding system.

CROSS EXAMINATION:

There might be some other system devised, but I haven't heard of it. On Defendant's Exhibit No. 12 I should say approximately the area that is colored in dark and light green is approximately 2 feet from the water table. When you get outside of the dark and light green area there is a slight bench or rise. It rises quite abruptly there to a height of perhaps 25 or 30 feet. By the flooding system I mean the water must pass over the surface of the soil. There are various methods employed by farmers for the purpose of getting water over the ground. There is

the furrow method, where the land is hilled up in furrows, usually 18 inches to two feet apart; that is commonly known as the corrugation system. The distance apart varies in different localities. The furrows are about four to six inches deep. As to the particular depth depends upon the character of the land. If the land soaks very well, you might make the furrows quite deep, if it is clay land. If it is sandy rough land it is better to keep the water near the surface. It is one of the chief purposes of the furrow system to keep a dry dust mulch between the furrows and not let the water get near the top, to prevent evaporation. Water will go downward through the surface soil, or sub-soil, on the land marked green or light green on Defendant's Exhibit 12, very slowly. It is a very fine, silty soil. I couldn't give those velocities off-hand without referring to the table. The surface soil would have a porosity of perhaps forty per cent; it comes in the same class as the clays. The depth at which plants feed upon the elements of the soil depends upon the plant. Even wheat and oats will feed at different depths, depending upon the moisture conditions and the soil. It is frequently the custom of farmers to keep the water off the ground so that the plants will develop a root system. It is considered a good practice, but they don't always do it. It is probably for the purpose of conserving the water supply and to make the plant go to a supply lower down. If put upon some plants, for instance wheat or oats, or any grain, early, it has a tendency to develop a root system near the surface.

I can't say from personal observation to what depth the roots of grain go. I have seen grain plants on exhibition that have shown roots ten feet long, dry farm grain, however. I have heard, but I couldn't say at this time, what the authorities on that subject say with regard to grain. It is a little out of my line. I think it could be safely assumed that grain plants will feed two or three feet below the surface on the ordinary farm. Alfalfa as a rule is a very deep-rooted plant and goes six, eight, ten or even thirty feet sometimes. I understand that they irrigate alfalfa pretty soon after it is planted. I am not an expert agriculturist; I do not wish to pose as an authority on those subjects.

Water does not flow by capillarity. The distance it would pass depends upon the fineness of the soil. The finer the soil the further it will come. Usually the clay soils have a higher degree of porosity than the sandy soils. I have heard of Hillgard on Soils. I think I have read some chapters of his book. I wouldn't say that I am familiar with Professor King on the Physics of Agriculture; not in the way of having made it a study. I am not a soil expert. I don't know that any experiments have been performed to show the speed with which water passes through the soil between corrugations in ordinary lava ash soil. My study with reference to the flow of water in the soil has been in connection with the underground sources of water and we were then dealing with long distances, laboratory experiments, which have shown that near the ends of the columns which

they have used for their experimentation, the rule is quite different from what it is after you get away from the ends of the column, and I should regard the distances between two furrows in a corrugated field as being so near together that the rule would not apply. If it was a long distance between corrugations, the velocity would depend upon several elements. It depends upon the grade of the water plane, upon the size of the soil grains, and upon the porosity of the soil. If you will allow me to give an illustration I can explain that better. The porosity of a pile of shot piled up in the form that you usually see cannon balls piled up, the most compact form in which spheres can be packed, if you take those same spheres and pack them in vertical rows, one on top of the other, so that each shot lies immediately above the other shot, we have not increased the size of the particles, but we have increased the porosity of the mass. One other element that I wished to mention in my answer, that helps to determine the rate of flow, and that is the temperature of the water. The four elements are concerned.

I have said that in my best judgment there would be about forty per cent. of voids in this top soil. That is the usual porosity of the clays. The porosity of sand is usually from 30 to 40 per cent; an average of 33 to 35 per cent. The porosity of gravel depends upon how much sand it has mixed with it. If it is clean gravel with no sand the porosity would be very high. If there is some finer material mixed with it, it is lower. It would vary over a considerable range. The

grains in this clay soil are very small and promiscuously packed together. If it is moved at all, it will be altered from time to time by the use of water. The tendency with the use of a lot of water is not that it would get closer and closer, but usually the reverse. If it is moved bodily by the water and redistributed, there would be no occasion to assume any change of porosity. The tendency of wetting the clay is to form a larger thicker filament around the clay particles and drive them apart. When it dries out it comes back to the original condition. Through clay soil the water moves slowly, but will move to great distances if it has a great deal of time in which to move. Gravity will pull the water down through the sands just as rapidly as in clay; capillary action is greater in clay than it is in sand.

Wild grasses grow upon the lands at San Jacinto. It consists of rye grass and a grass that I have usually heard called salt grass; also a broad leaf growing along the river channels in the wetter portions of the land. We found roots down in the soil where we dug the pits a foot or two deep. On the lands colored in yellow there is a foot to eighteen inches of very fine silty soil. Under that is another layer of the same general character except that it is partially cemented. This is an average of eighteen inches under the surface and extends for probably two feet on an average. It isn't what we call hard-pan in construction work. It is earth that lies below the frost line; it can be plowed, however. It is not so pervious to water as the top soil. I believe it is common in some sections

to find a layer of that kind in sagebrush land. I know certain sections where it is not. Below that is a layer of sand and gravel. We did not extend through it in any instance.

I could not say what year the silt or water marks in the canyon below the dam were made.

We didn't strike water in the land marked in yellow on Defendant's Exhibit No. 12. I don't know where that water table is.

EXAMINATION BY THE COURT:

The water table is the surface of the completely saturated soil. It is controlled by the character of the sub-soil or the impervious stratum underlying the soil and the elevation of the drainage channel and it always has an inclination upwards from the drainage channel. It follows in a general way the contour of the surface, except that the irregularities are modified considerably. The height or position of the water table is affected by whether or not the land is irrigated. After the application of water the elevation of the water table will be raised; it would depend somewhat upon the amount of water that was put upon the land. It will drain out after a long period of drouth and become very nearly horizontal.

RE-CROSS EXAMINATION:

I think the principal seepage in the Twin Falls country is between the layers of lava. The water might come out of the vertical cracks, but I would expect to find more seepage in the horizontal cracks. It is possible for water to get back into the canyon from the open cut at the upper end of the canal.

Through lava rock itself the rate of flow is so small that it is absolutely negligible. The lava rock, however, is usually full of blow holes and porous, and that isn't meant when you speak of the porosity of the material. It depends on the degrees of that, and the proximity of one blow hole to another as to whether water will go through those or not. I think water flows freely through those horizontal breaks and it is not likely to be stopped naturally. It would be natural for springs to form along the walls of the canyon after the course of time if the lands in the Twin Falls tracts were watered. When the water table rose in this district springs would begin to form in the Snake River canyon and might also form in the Salmon River canyon. I would expect that further down the canyon, but not above the irrigated lands.

THOMAS R. BEASON, duly called and sworn as a witness on behalf of defendant, testified as follows:

DIRECT EXAMINATION:

I reside at Ogden, Utah. I have charge of the Vineyard Land & Stock Company's properties in Nevada; have had for five years last December. During that time I have become acquainted with the tributaries of Salmon River, including the Shoshone Creek basin. I first became acquainted with them in 1910. I first irrigated the lands of the company in 1910. Nall Creek is seven or eight miles east of the Hubbard. In 1910 there were old ditches from Nall Creek that bore evidences of having been used for a considerable

time. In 1910 I irrigated about seventy-five to 100 acres on Nall Creek and it has been irrigated ever since that time. I did not measure the land. Nall Creek is a small stream. All of the water is used, every bit of it. There are two or three branches of it. The land irrigated is grass land, used for pasture. Nall Creek flows into Jake's Creek just below the Hubbard, but does not always run to where it empties in.

There were old ditches on Trout Creek when I went there in 1910; some were washed out quite deep. I think there were about 100 acres of land, and I continued to irrigate those lands in 1910. They bore evidences of having been irrigated prior to that time. It was just pasture land. We could cut it, but do not. It is about fifteen miles from where Trout Creek enters Salmon River. In the spring of the year the water of Trout Creek reaches Salmon River, but in the summer time it does not, especially when it is used for irrigation.

I became acquainted with the lands on Hot Creek and Big Creek in 1910. At that time there were old ditches on Hot Creek that bore evidences of being used for irrigation for a good many years. The acreage under irrigation there is about 75 to 100 acres. We raise nothing but grass. It is unenclosed. The method of irrigation is to turn the water out from the ditch onto the land at different places; something of the same general character as on the river property. It is the same system on Nall Creek and Trout Creek. There were old ditches on Big Creek

in 1910. I continued to irrigate the land from the same ditches. I fixed up the ditches some. Big Creek runs into Shoshone Creek. About a half mile by two miles of the land is fenced. Nearly all of it is irrigated. There is some high land on the north side of the creek that the ditches do not cover. With the exception of the very high places substantially the entire tract is irrigated. We cut some hay there. It has usually been kept for pasturage in the fall, but last year we cut hay. It is good grass land. The field on Big Creek, shown on Defendant's Exhibit No. 15, is in sections 7 and 12. The Shoshone fields are in sections 11 and 10, and this is a portion of the part marked in green. There would be about two sections of land that was being irrigated in 1910 from old ditches. I continued to irrigate with the same ditches. The general method of irrigation on all of these streams is by flooding the land, the same as in other sections. The Shoshone field is used for grazing land and pasture.

During the last five years I have also had charge of the Salmon River section, including San Jacinto, Middle Stacks, Vineyard and Hubbard. I have had charge of the irrigation of those lands. When I went onto the property in 1910 the Big ditch wasn't finished. The upper end of it was used for irrigating the land above the lane. There was some work done on the Big ditch in 1910, 1911 and 1912. It was finished to the present terminus of the ditch in 1912. The first year I was there the principal work on the ditch was from the lane up. There had been a flood

sometime in the year before that which had filled up considerable of the ditch and it took some work to clean it out. I done most of the work in clearing that ditch and then some little work was done in extending the ditch. We didn't raise anything but hay in 1910. We did clear a little brush below the lane for grain. In 1911 we sowed about 20 acres of grain there. We secured the water from the Big ditch. In 1911 we must have cleared five or six hundred acres, and I would say we put maybe a couple of hundred acres of that in grain in 1912. In that year we kept on clearing and had a thousand or twelve hundred acres, maybe a little more than that, plowed. In 1913 I sowed about 500 acres to oats and a little barley. In 1913 the total amount of land that was cleared and broken was seventeen or eighteen hundred acres, and in 1914 about seventeen hundred acres was sowed to oats. In that year we broke about twelve hundred acres more and have about 2700 acres plowed up and five or six hundred acres more that is cleared of sagebrush but not plowed. Last year crops produced on this land was mostly oats, and about 100 acres of barley. We had a hail storm that destroyed the biggest part of the crop. It came the day before we started to cut. We threshed out probably three-quarters of a crop. In 1913 we had a good crop of oats and barley. The average yield of oats was about 35 bushels to the acre. The barley was not so good, but I don't think we threshed it at all.

The head of the Big ditch or Harrell ditch was cleaned out after I went there, but the size of the

ditch was not increased. I have been in the cattle business on the range for forty-odd years. I commenced in 1869 on the Platte River, in Colorado, and I was in that country and Wyoming for a good many years. All my experience has been in the west on ranges using principally wild grasses such as we have on the ranges over there. Hay is put up for winter use and can be distributed a little better to stock than grass that is not cut, but so far as the value of it goes I don't think there is a great deal of difference between the hay and grass that is permitted to grow until it can be grazed off. The willows and brush, from a stockman's standpoint, constitute one of the finest shelters in the world. We consider willows very valuable for protection against storms in the winter time. There is good grass among those willows up and down the river. Since I have been in charge of the ranch I have not taken in any new lands on any of the ranches there, with the exception of that I have described under the Big ditch. There is a little at the Vineyard that comes under a ditch that has been finished since; that is the Tunnel ditch. Between the old ditch and the new ditch there is possibly 100 acres of land. We are using the same general method of irrigation, by ditches and dams that throw the water on the ground and flood it.

CROSS EXAMINATION:

We didn't irrigate the lands last winter; there might have been some water in the ditches for stock use. We flooded some of the lands at the Hubbard ranch last winter, but not any between Bird's Nest

and Bore's Nest. The water was shut out of the ditches last fall just before cold weather, in September or October. It was turned on this spring about the 1st of April, or maybe along in March. We commenced irrigation just as soon as we got the cattle out. That part of the Tunnel ditch that was constructed after I went there commences at the Jake's Creek crossing and extends down in a northerly direction. I completed it from Jake's Creek down to the present terminus; also from what is marked "Tunnel" on Plaintiffs' Exhibit 18 up towards the head of the ditch. The tunnel was not completed when I went there. We completed the tunnel and put in the head works of the ditch. The ditch is almost on a level with the river, and a few rocks thrown in the river, a rock dam. There is a board or head-gate to keep the water out of the ditch.

In 1910 the Harrell ditch on San Jacinto run down I would say about a half mile below the lane. It was not all completed to that point. We completed what was below the lane. The next year I built about three miles further. The water was not used as far as it was completed. I quit work late in the season. I don't remember how far down the used the water in that year. In 1910 I used water in the ditch as far as it had been constructed. In 1912 the ditch was completed to its present terminus.

I don't know how many acres of these different ranches were cut over for hay in 1910. I cannot state the relative proportion between hay lands and pasture lands. I do not remember the number of tons.

I made report of it to the head office at Ogden and it is a matter of record there. The lands on Shoshone Creek, called the Shoshone field, were farmed separate from the lands on Big Creek. When I referred to the Shoshone field I do not include the Big Creek lands. Nearly all of the land on the east side is under a ditch that comes out from a spring. I couldn't tell you the acreage under the ditch, but there is about two sections under fence. About half of it is under the ditch. It is used for pasture entirely. Last year for the first time hay was cut on the Big Creek lands. There is a half section inside of the fence and most of it is under the ditch; possibly 200 acres. The estimates of the acreage under the ditches at Hot Creek, Trout Creek and Nall Creek are not based on any measurements made by me. I couldn't tell how near they are; it is just a guess.

RE-DIRECT EXAMINATION:

We do not have water enough to irrigate very much in the fall and do not irrigate all of the lands up there after we cut the hay. Warm Springs Creek does not reach the river; it is used on the lands at all times.

There is a ditch just under the tunnel ditch that was used to irrigate the Vineyard ranch prior to the completion of the Tunnel ditch. It runs around the point up there. The tunnel ditch serves to irrigate the same land as this old ditch with the exception of 75 or 100 acres of new lands I mentioned yesterday. We still use the old ditch. With the new ditch we can use the water a little more economically; it is a

little bit higher. It is kind of hard to get the water out of the river in the old ditch. It was washed out right at the head. Aside from the new lands I mentioned the new ditch serves the same purpose as the old one.

RE-CROSS EXAMINATION :

Referring to Plaintiffs' Exhibit No. 18, the old ditch from Jake's Creek come out right close to where the new ditch crosses. It was right near that place. It don't show up on this map. There are two on each side of Jake's Creek that irrigate this land in here, and from this right in here. The one that comes out on the right-hand side as you go down the creek, runs nearly to the lower end of the field. The land in the lower end is cleared of sagebrush, but there is some sagebrush on the upper end. It is more what we call rabbit brush. We used those ditches all the time, every year. They are big enough to carry all of the water of Jake's Creek. There is another ditch from Jake's Creek down towards the ranch buildings. The meadow land runs close up to the tunnel ditch. There is some meadow between the tunnel ditch and the old ditch that has been cut over every year since I have been on the ranch. I do not know how much longer. There was some sagebrush and some meadow land between the old Harrell ditch and the Tunnel ditch. The lower end of it was meadow.

HENRY HARRIS, called and duly sworn as a witness on behalf of defendant, testified as follows:

DIRECT EXAMINATION :

I now live on Brown's ranch, in Twin Falls County, Idaho. I came first from Texas in 1884 to work for

Sparks & Tinnin. I went to the Vineyard ranch and was with the Sparks-Harrell and Sparks-Tinnin companies for 29 years. I cut hay on the Vineyard ranch from 1890 to 1913. I worked for the Vineyard Company two or three years. The Vineyard ranch was irrigated during all of those years for meadows and hay. I put up hay on the Hubbard ranch every year after 1890. I did not do the irrigation there. I did the irrigating on the Vineyard ranch every year, with the exception of two years, when I did it in a way. I was running the cow outfit and fixed up the dams and ditches and spread the water out, and then we had to go. Aside from those two or three years my time was spent in connection with the ranch, irrigating and otherwise taking care of it. Nall Creek is about seven miles northeast of the Vineyard ranch. There was a small pasture there in 1884. At that time two streams run into the meadow, one from the north and one from the east, and there was a little ditch taken out from the upper end that made the water spread over the meadow. We used it for pasture. It was irrigated during all the years I was there. Water runs from Nall Creek and Jake's Creek into the Salmon River, until it gets low in the summer.

I was at the San Jacinto ranch about the time the Big ditch on the east side was completed. I saw it the last time a few days before I came up here. As I remember it, the size of the ditch at the head was about the same when I first saw it as it is now. I could see where the ditch had been cleaned out.

At the Vineyard and Hubbard the pasture and hay lands were irrigated during all of the years I was there. I think Andrew Harrell died in 1907 or 1908.

CROSS EXAMINATION:

I did not have anything to do with the construction of the Big ditch; it was fully completed when I left there. I did nothing except suggest some patch work. The only work I did on the San Jacinto ditch was before time to work the stock. We would probably be down there fixing levees and things like that; willow dams. That would be only occasionally. The hay on the Hubbard and Vineyard ranches, one year when they told me it was measured, was something over 500 tons, I think. The Vineyard ranch cut the most hay. I would say something like 300 tons on the Vineyard ranch. In the early years they did not use as much hay as they do now, and they tried to cut a little more hay. I think it was 1912 or 1913 when the hay was measured. That was after the Vineyard Company bought the ranch. I don't think any land was irrigated on the west side of the river on the Vineyard ranch when I was there. I don't think we had any ditches on the tract, only from the overflow. I remember when the Tunnel ditch was built and I remember the ditches from Jake's Creek. There was hay cut between those ditches and the old ditch from Salmon River. It was right along Jake's Creek. Most of the hay was cut below the ditch from Salmon River, but there was one awful big piece that we cut between those ditches, and the rest of it was just skipping around, getting the best we could.

After we spread what water we could from Jake's Creek above the Salmon River ditch, of course the water all went down into the Salmon River ditch again and then it was scattered again below and went with the other water.

E. C. McCLELLAN, being recalled, testified as follows:

DIRECT EXAMINATION:

I have made a computation for the purpose of furnishing the Court with information as to the amount of additional acreage brought under irrigation between 1889 and 1904. I have made a table and have a copy of it. The first three columns in this table give the section, township and range of the parts under irrigation. The fourth column gives the number of acres irrigated in 1889 and the fifth column the number of acres irrigated in 1904. The total acreage under irrigation in 1889 appears at the bottom of the fourth column in the first table. That total is 4,178.4 acres. That includes only the lands between Bird's Nest and Bore's Nest. I have included in this table lands irrigated at the Vineyard ranch. The total of these lands appears in the fourth column. The area is 814.4 acres. The total of both areas is 4,992.8 acres on the Vineyard ranch and the Salmon River valley from the Bird's Nest to the Bore's Nest in 1889. There is nothing shown on the table for the Hubbard ranch or the Bridge ranch. The acreage under irrigation up to 1904 for the same properties is shown in the fifth column at the bottom of the second table. The last set of figures, that has

marked before it the words, "Total Irrigation in 1904," shows the total acreage under irrigation in that year, and it amounts to 5,981.2 acres. I have a detail on this table showing the location of the areas that were brought under irrigation between 1889 and 1904. The sixth column shows the irrigated areas under the new Harrell ditch, under the Bore's Nest ditch, and also under the Harrell ditch at the Vineyard ranch. The seventh column, giving the names of the ditches that the lands were under, and the eighth column gives the number of acres of land placed under irrigation since 1889, and the last column gives the names of the ditches that have taken out and that irrigated these different tracts of land. I made up the table from my own surveys and I have the data from which the table is made in case counsel should desire to see it. I can show the exact method adopted by me for the purpose of making up these totals. The areas showing the additional acreage between those two dates is correct with the exception that they are the gross areas from side to side of the valley. The river, with its meanderings through the different sections, would take up, as closely as I could estimate it, about ten acres to each section, or each mile through the valley. It would amount to about 130 acres and should be taken off to show the areas under irrigation. The channel will average about two-thirds of a chain, or forty-four feet, from bank to bank. It is seldom over 44 feet and in many places is less than that.

Said table was thereupon marked Defendant's Ex-

hibit No. 16 and was offered and received in evidence.

Mr. McClellan (continuing): The state lands I selected for the Sparks-Harrell Company and its predecessors, include practically all of the San Jacinto ranch property from the Bird's Nest to the Bore's Nest. The applications were filed in 1894 according to my best recollection at this time. There were none filed after that to my knowledge. Mr. John Sparks had the active management of these properties during part of the time. He was formerly governor of Nevada and is now deceased. I understand Mr. Tinnin is in Georgetown, Texas. I have not seen him in recent years. Andrew Harrell seemed to have the exclusive management of the properties after Mr. Sparks sold out. Between 1893 and that time they were managing the property together, seemingly. Harrell continued to manage the property up to the time of his death in 1907, so far as I know. I left the employ of the company in June, 1907. Jasper Harrell was the father of Andrew Harrell and is the man who originally claimed the Salmon River range. He sold out to Sparks & Tinnin in 1883. He is deceased.

CROSS EXAMINATION:

It was Jasper Harrell who afterwards became a member of the Sparks-Harrell Company. There was Jasper Harrell, Andrew Harrell and Martha Harrell, members of the company.

Aside from the work in re-building dams and fixing up head works of the ditches in 1904, I laid out

a little new work in the east half of section 2, 46 north, 64 east, under the Gray's dam H, marked on Defendant's Exhibit 5. The Gray ditch had been constructed about ten chains, and this was extended perhaps a couple of hundred yards further and another ditch taken out from the southeast of what is marked the Warm Springs Middle Slough, and carried northwesterly, dropping water into this same Gray ditch and its extension. The Gray's ditch does not extend from Gray's dam; it is just above Gray's dam a few feet. I do not refer to the ditch marked on Defendant's Exhibit No. 5 as Gray's ditch No. 1. The one I am referring to is simply marked "ditch" and is over the words, "Gray's Dam H," and marked 2 underneath. Gray's ditch No. 2, right above dam H, was built prior to 1889. Gray's ditch No. 1 was built in 1889. The land irrigated from Gray's ditch No. 1 lies between the ditch and the river. The data from which Defendant's Exhibit No. 5 is made was obtained in October, 1889. I have prepared another map identical with Defendant's Exhibit No. 5, only adding onto that in colors the new land. This map has not been introduced. It is my work map that I have had in the office, and by this I can tell you the different lands that have been added as new land in my table. On this map the lands colored in red and the land colored in blue indicate the lands under irrigation in 1889. The original of this map was prepared at the same time as Defendant's Exhibit No. 5. I have added lands to Defendant's Exhibit No. 5 in making this map for the purpose of finding out the

land that was placed under irrigation since 1889. I placed these lands on the map last evening and this morning from surveys I made in the past at different times. The first survey of Warm Springs ditch was made for location in 1889. The survey of Bird's Nest ditch was made in 1894. The ditch itself was laid out in 1893 and I located it the next spring by connecting it with government surveys so as to see what quarter sections, pieces or tracts of the land and ditch was located upon. Part of it was built first and surveyed afterwards. All of these surveys were made at different times prior to 1904. I made no survey in 1904 for the purpose of determining the areas that were under irrigation at that time. These surveys were made at different times for the purpose of determining where the government lines or company lines were. Where the new land was that was placed under irrigation, or what forty-acre pieces the ditches covered. These surveys were made in the same way I have previously described as having been made for Defendant's Exhibit No. 5. I had a transit when I made them. I stepped off the distances connecting with section or quarter-section corners as I went along, the same as I did for Defendant's Exhibit No. 5. That portion of this map that is added to Defendant's Exhibit No. 5, and the location of the ditch as I platted it on this map is also from calculations based on a correct survey. Such calculation is based first on the assumption that the shaded portion is correctly placed on the map and that the ditch has been correctly platted. I then calculated the area

between those ditches, last evening. The large area colored red on this map is in sections 14 and 11, 46 north, 64 east. It is under the upper Warm Springs ditch, the middle San Jacinto ditch and the lower Warm Springs ditch. These ditches are not shown on this map, except part of the upper Warm Springs ditch. The ditches were not there in 1889 but were there in 1904. The ditches are not shown on any other maps that I have produced. I got the data from later surveys that I made. I think that particular tract of land was surveyed by me in 1904. In surveying the land to find out where the ditch lay, I located simply the upper ditch, that being the outside of the upper boundaries of the irrigated land. I did not mean to say I run lines around that tract for the purpose of determining the area. I started in at the corner of sections 14, 15, 22 and 23, of 46 north, 64 east, and ran along the line between sections 14 and 15, until I got to a point on the line of the fence that is extended, starting a little bit east of that point and running in a southeasterly direction I took the bearing of that fence and measured the distance from the section line to that point, and then I followed along the fence line from that point on out, and noted the place where the irrigated lands left the fence line to the right, and stepped off the distances and platted it on my book. I located the ditch by simply noting the distance from the section line to the ditch at this point where it entered the field, at the southwest corner. To locate that point I stepped off along the section line until I got on a line with

the fence and then stepped from there to the fence, to the southwest corner of the field. I forget whether the ditch was there or not; I think the ditch was above the fence. I was merely locating partly the ditch and partly the field. It was really to locate the field and not the ditch, but it happened at one point the ditch was inside the field and so in locating the irrigated land I actually located the ditch. My notes do not show the places where the ditch crosses the section line. Whenever I was within a quarter of a mile of a government corner, or had an idea that my stepping might be a little bit out, I would then run over to the government corner, even if it was more than a quarter of a mile, and find out where I was. I did not run the side of the field in section 14, which is irregular, by courses and distances. I was alone when I stepped it and was carrying a transit to get the bearing.

RE-DIRECT EXAMINATION:

I took the course of the fence line on the tract about which I have been asked. The courses were taken by instrument and the distances by stepping. The fact is I took the course of the fence and then when I left the north side of section 14 I stepped back to the section corner between sections 10, 11, 14 and 15, and if there was any error I corrected it there. The fence being on a straight line, it was bound to check up. I testified that I observed the mode of irrigation and actual application of water upon the land after the ditch construction between 1889 and 1904, and there was land lying unirrigated under the Har-

rell ditch and north of the San Jacinto lane that would have been covered by that ditch or by a lateral from it. The Harrell ditch is the one referred to as the High Line ditch. If water had been carried through the Harrell ditch and turned out at the end north of the San Jacinto lane, it would have spread over a quite a tract of land in section 13, 44 north, 64 east, both on the bottom and on the bench land to the east of the bottom. I never saw any irrigation done from that ditch north of the lane. There is no other instance where ditches have been constructed running somewhat parallel with the river for irrigating the lands between the ditch and the river.

RE-CROSS EXAMINATION:

The little red strip in the west part of section 11, opposite what is marked Gray's dam, was located in the same way as the fields colored red in sections 14 and 11. My recollection is that in locating that I run directly north from the quarter-section corner on the south boundary of 11 to a quarter-section corner on the north boundary of 11, and on through section 2, and from that point as a basis I went off at right angles to the west and located the land. I went over in between the south end and the north end two or three times. I didn't run a line around the tracts; I stepped them off in different places and sketched in. I always do that in irrigation tracts.

Said map was thereupon offered in evidence as Plaintiffs' Exhibit No. 32.

MR. McCLELLAN: May I be allowed to explain a little of the other markings on that map?

MR. HAGA: I don't know as there is anything on the map that requires explanation so far as we are concerned, your Honor.

THE COURT: No, not unless counsel desires it, Mr. McClellan.

L. W. BEASON, being re-called, testified as follows:

DIRECT EXAMINATION:

I am somewhat familiar with the report that has been referred to as the Herrington report. It contains measurements on the flow of water of some of the ditches I testified about yesterday. Not all of the ditches were running their full capacity at the time those measurements were made. Mr. Herrington measured the flow in what I called the Harrell ditch on the San Jacinto ranch in July. It was 20 second feet. I calculated the capacity of that ditch to be $19\frac{1}{2}$ second feet; on what is labelled on the map as the High Line canal the maximum flow given in the report is 84 second feet. That measurement was made during the month of June. I estimated it at 90 second feet. The maximum flow of the San Jacinto ditch, or what is sometimes called the Middle ditch, as reported by Mr. Herrington, was 20 second feet. The measurements were made May 18, 19, 20, 21 and 22. I calculated the capacity of that ditch to be 24 second feet. The maximum flow in this report of the Fisher ditch is 26 second feet on June 28, 29, 30 and 31st, of the year 1914. I calculated the capacity as 21.3 second feet, as I gave it yesterday. In the East Bore's Nest ditch the maximum flow recorded

in the report is 11 second feet, and I calculated the capacity of that ditch to be 10.8 second feet. There are no other ditches where Mr. Herrington's report compares with my calculated capacity. I made the measurements in November and December, 1914.

CROSS EXAMINATION:

Mr. Herrington's measurements in all cases I think were made right near the point of diversion. There were dams put in the ditches below to throw the water out in the sloughs below the point of diversion.

THE COURT:

Q. I don't understand that. Did you see him make this measurement?

A. Mr. Herrington?

Q. Yes.

A. No, sir.

Q. Well, how do you know how he measured it, or when or where?

A. I am just reading from this report.

CROSS EXAMINATION (continuing):

I have examined the report, but I don't remember the particular point as to where he got the measurements.

The tunnel ditch broke last year, but I don't think it was because the capacity of the ditch was crowded. Some dirt on the upper bank fell into the ditch and caused it to overflow.

JOSEPH JENSON, being recalled, testified as follows:

DIRECT EXAMINATION:

I have examined the Herrington report. The point where the measurements of the ditches were made is shown by a map included in the report. It is a small scale map covering the entire distance of the Salmon River up from the Vineyard ranch to the Bore's Nest. I have examined that part of the report in which Mr. Herrington gives the total run-off of the streams in 1914, as well as the diversions from the streams for use on the defendant's lands. I have computed what he called the net loss between those two amounts. On the table following page 16 of the report, called Table 4, a summary of results is given showing unmeasured inflow and net losses on Utah Construction Company lands. The total of the last column, which is entitled "Net Losses on Lands of Utah Construction Company, Including All Ranches," the figure given is 9,580 second feet. The investigation extended from May 16th, apparently, to the end of September, 1914. I don't think that measurements extending only over that period of time would include all of the return water used for irrigation, because the return water, the seepage water, would continue to run a considerable time after the conclusion of this investigation. There is a column in the same table entitled "Unmeasured Inflow On the Lands of the Utah Construction Company, which is obtained by subtraction. The return water that was measured was the surface water.

Q. Mr. Jenson, you spoke while you were on the stand before about these lands, pasture land, at the San Jacinto ranch, being somewhat influenced by

alkali, affected by alkali, and that it would require flooding to take care of that, to eliminate it sufficiently for the tolerance of plant life. Can you say from what you saw there and from the irrigation that you saw take place, by which the lands were flooded, as to what the quantity of water would be for such irrigation there as you say would take place, as compared with what it would be on upland pastures?

MR. HAGA: If the Court please, I object to that. I don't think the witness has qualified from anything stated heretofore to express an opinion on that. In the first place, the examination he made was made late in the year. It wasn't made at the time the irrigation was going on.

MR. NEBEKER: I thought he testified that he saw the irrigation this year; that is my recollection, that he went over there and saw the method of applying the water to the land.

MR. HAGA: I have no such recollection.

MR. NEBEKER: This year, a few days ago; I am quite sure.

THE COURT:

Q. Is that the case, Mr. Jensen?

A. Yes, sir; I was on the lands last week.

MR. HAGA: I would like to have the question read then, in order that I may know just what is called for.

(Last question read.)

MR. HAGA: I still insist on the objection, your Honor. The record so far does not show that the witness can express an opinion on the question.

THE COURT: Sustained.

CROSS EXAMINATION:

I did not say that the Herrington report showed that the return flow was only from surface water. The measured portion of the return flow was only surface water. He gives the column of unmeasured inflow. There are two columns of return flow; one the measured return flow and the other the unmeasured return flow, and he explains how he obtained that unmeasured return flow. I intend to be understood as stating that the unmeasured return flow does not include the surface water. It includes water that he got by subtracting the water that appeared at the lower station, which were not accounted for by diversions after allowing for the surface return flow. It would include the percolating water. Mr. Herrington's measurements of the Salmon River were made at a point above any diversions by the defendant and then at a point shortly below the last diversion. The difference between those two is 9,580 acre feet, which, Mr. Herrington says, is the net loss. To get at the return flow he measured the surface flow or estimates it where he can't measure it. He gives the percolating inflow and the surface inflow separately. He says he attempted to measure it but doesn't claim a very high degree of accuracy for it; he did the best he could under the circumstances. I know that the water would be flooding over the banks from the meadows into the river at a number of places. The 9,580 acre feet of water that is unaccounted for could be accounted for by evaporation; possibly some by deep percolation; possibly some remained in the soil itself.

The total acreage of irrigation in 1914, according to the report, consumed in one form or another, and lost by evaporation and percolation, a total of 9,580 acre feet. I understand that some of this water was put on the bench lands cultivated grain crops last year. All of the return flow from that might not appear within the date of this report. The month of September is included in the report. The irrigation of the grain land would be discontinued possibly six weeks before that time.

According to my calculations the movement of underground water in that soil would be at the rate of 145 feet a day. The investigations in that report commenced with the 16th day of May, 1914. There would be included the return flow from the water that was placed on the land before May 16. That would tend to offset a little the return flow that had not returned by the time he closed his investigations. Table No. 3 shows the total amount diverted in acre feet from the time the investigation was commenced to the end of September. It shows a total diversion of 7,034 acre feet from the High Line canal. The return flow is 500 acre feet, showing a net loss from that ditch, that diversion, of 6,534 acre feet.

RE-DIRECT EXAMINATION:

That would not include any of the water placed on the land through the High Line ditch that returned to the channel after the date of the last measurement given by Mr. Herrington. In ascertaining the amount of net loss the measurements were made at the head of the canyon below the mouth of Shoshone Creek,

and it is from those measurements that the result giving the total amount of net loss are obtained. At the place where those measurements were made there was a gravelly formation; the stream runs right close to the ledge on the east side of the canyon; then there is approximately 150 feet of ground between that and the west edge of the canyon, that consists of gravel and sand to a depth of at least six feet. The measurements at that point included none of the sub-flow of the stream. I understand from his report that a good deal of the visible return water was not measured. It was water that was running over in a thin sheet and he estimated it. He arrived at the quantity of seepage water simply by taking the total amount of water above the point of diversion and subtracting from that the total amount of water below all points of diversions. This is the way he arrives at what he calls the unmeasured return. I would say that that would not necessarily include all seepage and percolating water, because if we take into account the seepage water in the canyon below and add that to the discharge of the river at that point, there would be more water appearing than his record shows.

RE-CROSS EXAMINATION:

The main gauging station above these ranches is in a hard formation, and the unmeasured flow would be insignificant. The lower gauging station is probably four or five miles below the last diversion. It is probably eight miles below the head of the High Line ditch. I haven't measured it; I can look it up on the map.

EXAMINATION BY THE COURT:

I examined the formation but did not dig any test pits near the upper gauging station; just examined the formation of the canal running alongside of it. The river runs through a lava ash formation, cemented lava ash. I don't know what is below that.

It was thereupon stipulated that the Herrington report would be left with the records for the Court's use.

The following stipulation was thereupon made by and between counsel for the respective parties:

It is stipulated and agreed that on the 18th of July, 1891, John Sparks and Jasper Harrell conveyed to the Sparks-Harrell Company, a corporation of California, all the lands owned by them along and on the Salmon River and its tributaries and elsewhere in Elko County, Nevada, together with any and all water rights owned by them and used therewith, and that thereafter, by deed of date of October 31, 1908, said Company duly conveyed to the Vineyard Land & Stock Company, a corporation of Utah, all of said lands and all other lands in said County and State owned by such grantor at the time of such conveyance, and as shown in red on Exhibit 1 herein, and according to the abstracts thereof herewith tendered to the plaintiff and to the Court for use at any time, and together with any water rights owned by said grantor and used therewith.

Then as to the Idaho lands it is stipulated and agreed that the Vineyard Land & Stock Com-

pany, a corporation of Utah, by mesne conveyances from original owners, is the owner of all the lands on Shoshone Creek and its tributaries, in Twin Falls County, Idaho, as shown by Exhibit 10 herein, and the abstracts thereof, herewith tendered to the plaintiff and the Court for use herein, and as shown by deeds thereto from the Sparks-Harrell Company, of dates October 31, 1908, December 29, 1909, and July 27, 1910, as recorded in the office of the County Recorder of Twin Falls County, Idaho.

It is further stipulated that the original conveyances from Sparks and Harrell to the Sparks-Harrell Company are included within the lands later conveyed by the Sparks-Harrell Company to the Vineyard Land & Stock Company, that is, they are a part of the larger amount later conveyed to the Vineyard Company.

J. H. PATTON, duly called and sworn as a witness on behalf of defendant, testified as follows:

DIRECT EXAMINATION:

I am engaged in engineering and surveying, and reside at Salt Lake City. I had about two years of college training in the University of Wisconsin, but didn't graduate. I have been engaged in railroad location, construction, irrigation work of different kinds, some hydro-electric work, power plant construction and pipe-lines. I gathered the data myself for Defendant's Exhibits 7, 11, 12, 13, 14 and 15, under Mr. Beason's direction. I did the field work.

Most of the time I had four men assisting me; there was one or two times when I only had about two men. I was engaged in obtaining that data for about eight months. I checked the notes and other data of those measurements with the maps as they were being prepared. The colored areas shown in dark green, light green, yellow and gray upon those maps correctly represent the areas of irrigated lands according to my measurements. I am not able to testify as to the amount of irrigated lands under each of the ditches shown on those exhibits. The waters of different ditches overlap and intermingle with each other in such a way that you can't draw any conclusions as to the bounds or limits that the waters of any one ditch may cover. Certain of the areas are covered by more than one ditch. I am able to state from my own knowledge and observation that all the colored areas shown on those maps, purporting to show irrigated areas, are in fact areas that have been irrigated. I had something to do with taking the cross-sections of the various ditches. They were generally taken a short way from the point of diversion and in all cases above points where water had been turned out of the ditches. They were taken at points where the ditches were the smallest. After a ditch has had water taken out of it for some distance it is customary to make the ditch a little smaller. They are smaller at the lower end than they are at the point of diversion. I was with Mr. Beason when he made the measurements upon which his computations were based.

CROSS EXAMINATION:

I have been connected with the defendant company a little over a year. I went onto the Salmon River ranches about the 2nd of April of last year. I did not know anything of the conditions of the ditches on these lands before that time. I commenced to survey about the 10th of April, 1914, on the San Jacinto ranch. I first surveyed those on the north end of the ranch at the Bore's Nest and San Jacinto fields. From San Jacinto to Bore's Nest took about three weeks. I then started at San Jacinto and worked south to the Bird's Nest. It was about the 9th of July when we finished at the Bird's Nest. We then went on up the Salmon River to the Vineyard, through the canyon. I couldn't say how long it took us on the Vineyard ranch. We worked on the Vineyard and Hubbard ranches and were in that vicinity on the two ranches a month or more. I have never had any great deal of experience in the measuring of water before 1914. The measurements made occasionally by me, or in which I assisted prior to that time, were sometimes made with a current meter and sometimes with a weir. Prior to 1914 I had had about the same experience in measuring ditches as in measuring water. In measuring the ditches I don't recollect what formula we used. There are several formulas that are considered very good. Cotter's formula is considered by most engineers as being fairly accurate for most water measurements. I couldn't say whether we used that one or not. I was engaged in locating the boundaries of the meadows, locating the streams, section corners and any top-

ography that might be on the ground. Mr. Beason was with me occasionally in the field. I was instrument man. Mr. Beason was chief of the party. Most of the times when he was with me he would sometimes take a chain and sometimes a rod, or whatever there was to be worked with, depending a little bit on what we were doing. A great many times he would come out and give me my instructions and then leave. The rod man selected the location of the lines that were to be run, or the boundaries of the plat that was to be made. I was behind and had the instrument. I don't know whether the upper ditches are so much larger than is necessary to irrigate the lands between them and the next ditch below, but from any ditch the water will run beyond the point where it is actually necessary to use it. The water doesn't always go on the ground; some of it runs over and the consequence is that it intermingles with the waters of the other ditches. I saw evidences of that in a good many cases. After you get beyond a certain point I could not tell what land was watered by one ditch and what was watered by another. It isn't exactly my idea of it, but it is true in one sense at that, that there was so much water flowing over and onto the land that lays between the two ditches that it could be used again on the land below and formed a substantial amount of water that was used below.

RE-DIRECT EXAMINATION:

I saw all of the areas that the rod man picked out. I gave instructions to the rod man in Mr. Beason's

absence, as to the details of the selections and the areas were selected by the rod man under my supervision. At the time I made that survey there was water on most of the lands. As to the part upon which water was not actually on, the ground was generally moist, and if it wasn't moist there was a certain amount of silt and dirt, et cetera, that the water had left on the grass, probably two or three inches high. It showed there had been water there.

RE-CROSS EXAMINATION:

There was water running over the land when the survey was made; occasionally we were working in water. We were working in water most of the time on the lower end of the San Jacinto ranch.

The ditches were measured in November, 1914; I think it was after the water was turned out of most of them. The Warm Springs ditch had water in it. The measurements were made as explained by Mr. Beason.

DEFENDANT RESTS.

E. B. DARLINGTON, heretofore sworn as a witness on behalf of plaintiffs, being called in rebuttal, testified as follows:

DIRECT EXAMINATION:

I have examined Defendant's Exhibit No. 5 and other exhibits of the same character, purporting to show the lands that were irrigated on the Salmon River, in a general way. I have compared them with the map which was introduced on behalf of plaintiffs purporting to show the land under irrigation. I have made a map showing the irrigated lands shown upon

defendant's exhibits that are not included in the irrigable area on plaintiffs' maps. The map to which I refer is marked Plaintiffs' Exhibit No. 33. On this exhibit the land that is irrigated according to our observations is painted in red. The land not so irrigated is painted in green. The land painted in green on this map represents the land that is claimed by defendant to be irrigated and not admitted by us to be irrigated. On that part of Plaintiffs' Exhibit 33 showing the Vineyard ranch, colored in green, the land was very largely in sagebrush, rye grass and partly encrusted with alkali. We could find no evidences of irrigation. We searched for it. A strip on the east side of Jake's Creek and running down the west boundary of the tract was covered with sagebrush. It is the tract lying between the field colored red and the Tunnel ditch. It is the land shown on Defendant's Exhibit No. 4 as being irrigated. Plaintiffs' Exhibit No. 13 is a photograph that shows the sagebrush land on the west side of Jake's Creek. That would be the part to the south and west. Where it is patched in red has since been cleared. Relative to the figures I have just placed on the map, where I have drawn an arrow, the picture was taken looking northeasterly. It is point 25 on the Tunnel ditch. It shows the condition as it was in October, 1911. Plaintiffs' Exhibit No. 12 was taken at a point north of the ditch referred to in this case as the old Harrell ditch. The picture was taken at point 33, as marked on Plaintiffs' Exhibit 33, and was looking in a northeasterly direction.

That shows the fields that have been marked on this map. It does not show what is excluded, except in the far distance. It is land that we included in our irrigable area. If it was as good as that we classed it as irrigated lands. The foreground on Plaintiffs' Exhibit No. 27 was excluded from the irrigated land. That picture was taken near the crossing of the Tunnel ditch and Jake's Creek, looking northerly, at the point on Plaintiffs' Exhibit 33 near station 35. The camera was pointed approximately the direction of the arrow I have just placed on Plaintiffs' Exhibit 33. My recollection is that the photograph was taken in October, 1911. The sagebrush land in the foreground of this picture shows the land that was excluded. That land didn't bear any evidences of having been irrigated. I didn't find any ditches on it. I walked over it, just observing general conditions. I didn't make any special search for ditches at that time. I made observations with the view of finding any sources of irrigation and the land that was being irrigated. The land at the north and east of the field in red on Plaintiffs' Exhibit 33 down the river and which is colored in green on that exhibit, was grown up to willows and is not irrigated so far as I could find. There are no evidences of any irrigation or ditch lines. The land from the northerly limit of what is colored green on Plaintiffs' Exhibit 33, as part of the Vineyard ranch, and the little strip of green which appears at the southern line of section 20, 45 north, is a narrow canyon overgrown with willows in the bottom. There are no ditches along

there. The land in sections 20 and 21, 45 north, and 17 and 16, 46 north, colored in green on Plaintiffs' Exhibit 33, is overgrown with willows and cut up with sloughs. There was no evidence of artificial irrigation. There is evidence of overflow by the river during high water season. The land in township 45 north, at the east of the strip colored red on Plaintiffs' Exhibit 33, and colored green on that exhibit, claimed by the defendant to be irrigated, is overgrown with willows and cut up with sloughs. I could discover no evidences of any ditches there. A large part of it would overflow during high water of the river. There are sloughs through it, which in 1911 were overgrown with willows and sagebrush. I could see no signs of any systematic use of them for irrigation. By systematic I mean artificial use, where water had been directed and controlled. I think those lands have not been cut over; they are covered with sagebrush and willows. The land in section 34, between the two fields colored red on Plaintiffs' Exhibit 33, colored in green on that exhibit, is overgrown with willows and other brush and cut up by sloughs. The land in sections 22, 23 and 14, township 46 north, colored in green on Plaintiffs' Exhibit 33, is very largely in willows, rabbit brush and some sagebrush. I couldn't find any that had been irrigated. The island south of the lane is largely sand-bars and gravel-bars. The lane is represented by the white strip not colored, extending through section 14. South of that was sand and gravel-bars and sagebrush. The island north of the lane, colored

in red, is cut up by sloughs and willows; not so much sagebrush north of the lane. On the entire ranch from Bird's Nest to Bore's Nest, I would say there are between 500 and 1,000 acres covered with willows. In some places they widen out into wide strips and in other places there is just a fringe along the bank. The river bank throughout this entire ranch from Bird's Nest to Bore's Nest is low relative to the surrounding country. The river overflows and floods a large part of it at certain times of the year. It would overflow a considerable part of it without dams in the river. The land I have colored green and hatched in red represents land that has not been either cleared or in cultivation since the extension of the High Line ditch beyond the lane. The explanation I have made as to the condition of the land that is colored green and not included as irrigable land, extends to other parts of the map and to which my attention has not been particularly called.

The gauge below the mouth of Shoshone Creek is in section 33, 47 north, 54 east, on Plaintiffs' Exhibit 33. It is in section 23. The river at that point is narrow in cross section. The bed is gravelly. The river at that point is I suppose 150 feet wide, or 200 feet perhaps. The Twin Falls Salmon River Land & Water Company, in co-operation with the Geological Survey, maintains that station. It has been so maintained for four years that I know of. It is in a very good situation to give accurate results, I think. The canyon commences about 300 feet about the gauge. The annual run-offs which have been heretofore testified to, do not include the diversions made above.

The banks of the river covered by the water in the Plaintiffs' reservoir are quite similar to the banks of Rock Creek and Snake River canyon in the Twin Falls country. It is the same lava formation.

Q. What do you know about the walls of Rock Creek and of Snake River, in those canyons, permitting of seepage or water passing through them?

MR. NEBEKER: That is objected to as immaterial, irrelevant and improper rebuttal.

THE COURT: I doubt whether it is very material, but it seems to be rebuttal. I haven't been able to appreciate the importance of the testimony upon this general subject, but you went into it with Mr. Jensen. You undertook to show that there would be seepage or drainage through the adjacent walls of the canyon and dam. I suppose this testimony is for the purpose of rebutting that general conclusion.

MR. NEBEKER: They went into it, if your Honor will remember, in their case in chief.

THE COURT: I think that was brought out on your examination. You asked as to the wastage of water from the dam, your idea being, as I remember it, that that would be charged against them that they would be charged with the loss at the dam. I suggested that if the dam was unreasonably constructed, that is, if it was wastefully constructed, that they might be chargeable with unnecessary waste. I don't think they went into that, did they?

MR. NEBEKER: Your Honor made that suggestion, and of course I followed the suggestion and desisted from further catechization upon that sub-

ject. They went into it fully with this witness and Mr. Robinson.

THE COURT: Haven't you gone into the matter of showing how much water there was before the dam—

MR. NEBEKER: By cross-examination.

THE COURT: Before they went into it?

MR. NEBEKER: With their witness. There was some testimony upon which it was cross-examination, but it was while I was cross-examining that your Honor made the suggestion, and then they went into it at large.

THE COURT: That isn't my recollection. I think I shall let him answer.

Mr. Darlington (continuing): The walls of Rock Creek and Snake River in those canyons seem to be almost sealed against percolation. The evidence of that is that the lands in the Twin Falls neighborhood are water-logging, due largely to the fact that there is no drainage of the water through the canyon walls into Rock Creek and Snake River. A great many wells have been sunk to develop an artesian flow and this flow is then carried in surface ditches over the brink of the canyon. This is very largely due to the fact that water don't seep through the walls of the canyons.

CROSS EXAMINATION:

I didn't say that it was my understanding that lava rock was impervious to the flow of water. I would not say that the formation at the ends and near the dam would be impervious to water. I said the walls of Rock Creek and Snake River are practi-

cally impervious. I don't say that the walls of the canyon immediately above the plaintiffs' reservoir are impervious to water. I know that a great quantity of water has escaped by seepage from that reservoir somewhere. I can't tell what the loss by seepage is. There is a much larger loss than is accounted for by evaporation. In my opinion the loss to be accounted for by evaporation is only a small portion of the total loss.

I suppose I visited the San Jacinto ranch and the Vineyard ranch six or eight times. Altogether I should say I have spent about six or eight days there. I did not make any of the surveys myself. I did not prepare Plaintiffs' Exhibit 33 from any surveys that I made. I took the photographs I have mentioned this afternoon in October. There was some stock in the fields then, but not very many. I don't say that no grass was grown upon the land shown by those photographs identified by me this afternoon. I don't say either that no grass was grown as a result of irrigation, but it is just a question of what is to be considered irrigation. Turning the water out of a ditch and letting it overflow through sagebrush to soak up the land, would not in my opinion be irrigation. Have never considered sagebrush land as being irrigated. I would say water was being wasted on it and not used on it. If I saw that it was clearly the intention to turn the water out from the ditches on this sagebrush land, merely for the growth of grass along in the brush, I would probably classify it as irrigated land; it would have to be apparent to me that that was the intention before I would classify it as irri-

gated land. I think a very large part of that country is pasturage. On Plaintiffs' Exhibit 33 I have excluded from the irrigated lands almost the entire river bottom about the San Jacinto ranch. I know that there have been dams put in the natural channel at intervals, and also in the sloughs that lead out from the natural channel. There were a few places where the ends of dams still remained. The dams had been washed out. I don't know how many temporary dams had been put in the natural channel in that section colored green on Plaintiffs' Exhibit 33, or in the sloughs running through that section and which had either been removed artificially or by the natural action of the water.

RE-DIRECT EXAMINATION:

I can only say that there was some grass scattered around through the sagebrush, but not in any great quantities at all in the sagebrush lands that I excluded as not having been irrigated. I don't think it was materially different from what I find in sagebrush that has not been irrigated. The photographs cover in most cases fields that I included as irrigated land, as well as land that was excluded. You find a white incrustation of alkali and salts at the Vineyard, along by the Bird's Nest and San Jacinto, some at the Bridge ranch and some on the Island.

RE-CROSS EXAMINATION: It is mostly the white alkali.

C. B. STOCKING, heretofore sworn as a witness on behalf of plaintiffs, called in rebuttal, testified as follows:

DIRECT EXAMINATION:

I testified that I made the surveys shown on Plaintiffs' Exhibit 33. I was in charge of the party that made the surveys. I spent about five weeks in the work. I had two assistants besides the driver, who helped occasionally. On Plaintiffs' Exhibit 33 the land colored in red is land that was under the ditches. Taking the land north of the lane between the border of the red line and the east line of the river, there is a strip of land north of the lane and partly south of the lane, of 1,117.4 acres; it extends north about a mile. I have included that as pasturage not irrigated. It evidently is inundated in high water, but the main part of it is covered with sagebrush and willows. The willows are very thick in places and very wide in places; at the upper end they cover practically the entire strip from the east channel of the river over to the boundary of the irrigated land. North of that I have an area of 414 acres, classified as hay, not irrigated, on the island. There were willows lining the banks of the stream and scattering willows across the island. There were no ditches at that time. I looked the island over quite carefully and found no indications that there had been any ditches. The river in high water evidently overflowed. The land that is east of the east fork of the river, which would now lie under the Big Ditch as constructed, was at that time entirely covered with sagebrush. It was not under any ditch that was then carrying water, and the acreage was computed as lands that could be brought under the ditch. Going

south of the San Jacinto lane, up as far as Middle Stacks, is an area which was included in this 1117.4 acres as pasturage not irrigated. The land that is south of the San Jacinto lane included between the branches of the river is land that is covered with sagebrush, gravel bars and willows. Over towards the west fork of the river there are large gravel bars and in sections down in the bottom the sagebrush is very thick, making walking difficult. On the land south of the lane and east of the west branch of the river, marked or corrugated on Plaintiffs' Exhibit 33, is sagebrush and rabbit brush. There was no grass that I could find in the sagebrush, with the exception of right along the river bank. There was a strip probably 300 feet wide of rye grass that was quite tall in places; it grew in bunches. From the looks of it it had not been cut that year, because it interfered with the sights of our transits. Between the Upper Middle Stack and what is known as the Big Ditch, I have marked a strip designated as brush, containing 57 acres. I could find nothing in it but brush; no grass whatever; practically bare. In the strip that is green going from the Lower Middle Stack to the Upper Middle Stack, and the strip in green composed of the river and willows, I could see nothing that had been irrigated; nothing but brush, no rye grass to speak of. That is the condition all the way up through the Upper Middle Stack. I traversed the west side of the river, and the southern part is included in pasture designated as being irrigated, but which is more than fifty per cent. covered with

sagebrush. It is very rough and some rye grass grows down towards the river banks. On the east side of the river there was nothing that I could find but sagebrush, and no more grass than would ordinarily grow in the sagebrush. From the head of the Bird's Nest ditch, going over to the east branch of the river, there is a mass of willows that is almost impenetrable. We had to keep watch of the boys going through to see that they did not get lost. That is the condition to Contact and above. At the place marked green here the river is in a narrow rocky bottom, with willows on the bottom and I think a little grass between the clumps, such as you would ordinarily see down on the river bottom. At the upper end of the Vineyard ranch, going up towards the mouth of what we call the old Vineyard ditch, is a strip of green of 42.3 acres, marked as pasture not irrigated. That lies down below the bluffs right next to the river and is fringed with willow clumps scattered through it, used as pasture, and in my judgment would be overflowed when the river got to a little lower than its highest mark. There are no ditches there. The section lying north of the Vineyard and between the boundaries of the Tunnel ditch, was grown up to sagebrush and rye grass. On the east side of this border of grass is sagebrush and rabbit brush and rye grass scattered through. From the appearance of it it had not been cut. It was in bunches and where you find bunches you will find rye grass up probably two or three feet high. The north end of the Vineyard is what is known as Starvation field.

There was no grass to be found. It was willows, sagebrush and bare ground. It is alkalied. Down below Starvation field, as far as it is colored, is simply willows. Sagebrush comes down to the willows. The willows bordered the river for a distance on each side, and there was no grass. A little below the Vineyard from Starvation field it enters into the canyon and is lined with thick willows on both sides of the river. It is sketched in from township plat. We didn't traverse this section here. The river is very winding and will practically double back on itself. It makes the willows very wide in places. The road follows the river quite closely; it hugs the cliffs. You can see the river from the road practically all the way.

I have heard the testimony as to ditches from Jake's Creek, but I failed to find those ditches. I was all over that strip of country through here, so that if there had been any ditches I would have found them. The surveys I made were such as are usually made by engineers. The distances were read by stadia and we used the transit for courses. Part of the distance was actually chained out and the rest was stadia work checked with chainings, to see that the instrument was not out of adjustment. I would call the survey correct.

CROSS EXAMINATION:

I commenced making the survey on the 18th of December, 1911, and finished just before the 1st of February, 1912. There was some stock in the Bore's Nest field and some on the Vineyard. I would not

say that the country had been depastured. I have had no experience in connection with the livestock ranches. I have done farming work, but no ranching, as it is termed here in this western country. I have been in the west about 10 or 11 years. I am acquainted with farming as carried on in the far east, and my work here has been engineering on railroad and irrigation projects. I am not used to the kind of irrigation that is conducted upon properties such as those of the defendant. That isn't the kind of irrigation that I call irrigation at all. The irrigation which is produced by putting dams in the natural channel of a stream and just flooding the water out over the land in the swales, and then picking it up and spreading it still more and covering up all the meadow land, I have never thought of as being irrigation. If the dams were put in and men stayed with the water and kept spreading that water around and putting it to a beneficial use, I would call it irrigation. I would call it irrigation if they put the dams in and spread the water out over grass land and distributed it fairly well over large areas and let it run there until the grass was matured; or if there was grass in the sagebrush outside of what would naturally grow, that was brought up by irrigation, and the water cared for instead of just turning it out and running it wild, I believe that would be irrigation.

RE-DIRECT EXAMINATION:

In making up the survey and the maps showing the irrigated area, and in determining what land had

been irrigated, I traversed all the ditches which were to be found and all the land that was under ditches, whether in sagebrush or in rye grass, and it was included as being irrigated. If there was any ditch from which water might be procured I would call it irrigated, and the same with respect to dams.

WILLIAM J. YOST, duly called and sworn as a witness on behalf of plaintiffs in rebuttal, testified as follows:

I live at Brown's bench, postoffice address Rogerson, Idaho. I went onto the lands of the Vineyard Land & Stock Company on the Salmon River in 1896. I worked for the Sparks-Harrell Company something like six or seven years. My headquarters during the first three years was at the Vineyard and Hubbard. After that I was irrigating on the Salmon River from Bird's Nest to the Bore's Nest; four or five years. I did not do all of the irrigating; I had one man most of the time; part of the time I did it alone. In the early part there were two of us in fixing up the dams; in the later part I might be alone and was a part of the time. From June until the 1st of July, only about a month, I was alone. The occasion for having a man with me in the spring was that we had to fix up the dams and heads of the ditches and so forth. We generally called it about 10 or 11 miles from the Bird's Nest to the Bore's Nest. We did whatever irrigation was done on both sides of the river between those points, or most of it. I did the mowing between the San Jacinto and Bore's Nest. Sometimes there were two or three machines doing the mowing. We

took something like 50 or maybe 55 days to cover the land. I don't know about the time that I was alone, or when there was two machines. I couldn't tell just the amount of days it would have taken one machine to cut over the lands that was cut for hay. I don't know that it would take quite a hundred, because I don't remember just what time there was two or three machines running. I don't believe a man could average over eight or ten acres a day with one machine. I don't believe that there is a great deal of difference in the area between the San Jacinto buildings to Bore's Nest, or in hay there, than above the San Jacinto buildings. I think the largest acreage cut over is above San Jacinto. I mean the Bird's Nest and Middle Stacks. The land we cut over was not taken in solid tracts. We just mowed the bottom lands, the best part of the hay. We didn't mow it all. The fields would be irregular.

CROSS EXAMINATION:

I irrigated on the Vineyard ranch in 1896 and '97. We tried to get the water on about the first of April. There was one ditch we called the Harrell ditch, that came from Salmon River. There was only one ditch on Jake's Creek which was on the east side. We irrigated the pasture lands in those days. There would be some little grease-wood, rabbit brush, rye grass and what other grasses might grow from irrigation. We had what we called the wild red-top that grows mixed with the rye grass quite a bit. I have irrigated the pasture lands and after irrigating them we had good feed for the cattle in the fall and winter. That

is why we irrigated the pasture land. I was told to irrigate a certain ranch and I irrigated all that I could. I irrigated all that I could at the Vineyard. I tried to run the water as far as I could. I spread the water over all the land I could at the Vineyard. I did it in a proper manner as far as my judgment goes. In irrigating we tried to keep the ditch full and have an outlet from the ditch and maybe furrows from the ditch sometimes to put it on the higher parts of the ground. We tried to turn the water out in a ditch and after it got on the ground see that it properly covered the ground. In addition to that I took a shovel and at times dug ditches here and there so as to convey the water onto the ground that it wouldn't otherwise reach. I usually used a shovel and had a team, and would go there and haul something, one thing or another, and put in there, or plow. I irrigated in 1898 on the Hubbard just the same as at the Vineyard. I irrigated everywhere I could get the water over. There was not very much sagebrush; there was some greasewood and rabbit brush in the pasture land that I irrigated. There were dams in Dry Creek above the Hubbard field and a ditch down through the field. I used that one spring and irrigated most of the pasture. Grass grew in that big field and it produced better grass on account of the irrigation. About four years after I left the Hubbard in 1898, I went to San Jacinto. While I was irrigating I always had a team and a saddle horse. I could use either one I preferred. At the San Jacinto proper I never irrigated. Each year I would

be irrigating something like three months, beginning with the first of April. I irrigated other lands besides the meadow land that was cut over in the fields between the Bore's Nest and the Bird's Nest; everything that I could get the water on, such as rye grass. There is always brush, more or less, and I irrigated all the land that I could for pasture. There was a quite a pasture, but I couldn't tell how much. By that irrigation I raised better crops of grass on the land. I did nothing else during those three months besides devote my time to the irrigation of those lands. I was going and coming constantly during the three months and was supposed to be over all of it. I was over all of it probably several times during the three months. I did my best to scatter the water and control it wherever it was necessary to make it cover the ground. I have heard of the place referred to in the testimony as the island. I built a rock dam there in 1903 or 1904 to get the water out. I irrigated all over the island. I used water from the Fisher ditch and put dams in the sloughs to turn the water over the land. The dams were made out of sod mostly, turf. The dams were put in to throw the water out on either side of the sloughs to cover the land. I would have to repair the dams each spring and maybe make some new ones. There was a quite a few dams.

RE-DIRECT EXAMINATION:

I had a camp at the Bore's Nest and one at the Middle Stacks; part of the time I was at one and part of the time at the other. The rock dam I spoke

of was at the head of the Matson or Harrell ditch and the Fisher ditch. The pasture or grass grows some little distance there above the ditches.

RE-CROSS EXAMINATION:

The pasture that grows above the ditches is due to sub-irrigation and after you get a few hundred feet or more away from the ditch there is no grass grows there. The ditching crew assisted me one spring in repairing the dams and ditches.

RE-DIRECT EXAMINATION:

The effect of overflows of the river during the periods of flood would in places probably raise some hay and pasture.

RE-CROSS EXAMINATION:

I don't think we had much overflow prior to 1904. In order to get the water out over the ground we had to use dams and ditches.

RE-DIRECT EXAMINATION:

The river does not always overflow. It might back in some sloughs to make feed, but not always to overflow on the meadow or anything like that. It didn't overflow all along the river.

D. C. WORKMAN, duly called and sworn as a witness on behalf of plaintiffs in rebuttal, testified as follows:

DIRECT EXAMINATION:

I reside at Churchill, Cassia County, Idaho. I worked for the Sparks-Harrell Company in the cow outfit beginning in 1899. I took charge of the San Jacinto ranch in September, 1910, and continued until January, 1912. I was looking over the ranch to

see that it was irrigated and to help irrigate it. I had charge of irrigation. In 1911 and for some years prior to that I seen no hay cut at the Bird's Nest. I was familiar with the ranch and noticed no hay being cut at the Bird's Nest from 1899 until 1912. I was on the river most every year during the summer time. Hay was cut at the Middle Stacks. The hay that was cut from the San Jacinto to the Bore's Nest was measured in 1911. I assisted in measuring it. My recollection is there was somewheres between four and five hundred tons. In that year hay was being cut on the San Jacinto ranch only at the Middle Stacks, San Jacinto and Bore's Nest. This number of tons of hay includes just from San Jacinto down to the Bore's Nest. My estimate would be that there was more hay cut there than at the Middle Stacks; not much more. There would be a little more than half I would say cut at the Middle Stacks than from San Jacinto to the Bore's Nest.

CROSS EXAMINATION:

I didn't take the measurements down. They were taken down by Alec Patterson. I didn't figure up the amount of hay; Patterson did. I seen the figures. The four or five hundred tons was just a guess of mine; to the best of my recollection it was somewheres in that neighborhood. Between 1899 and 1910 I was practically all over the range. I was riding from 1899 until 1903, on what is known as the Rock Creek side, in Idaho. We called it sixty or sixty-five miles from the San Jacinto ranch. I got over in around San Jacinto every summer gathering

cattle, and also went there for provisions. I was at the San Jacinto ranch at times during July and August between 1899 and 1903. I was also at the Middle Stacks in 1899 and went up the river past the Vineyard and Hubbard. In 1900 when I was over to the San Jacinto we were there for provisions and also to clean the cattle from the fields. That was in May. I was up as far the Bird's Nest in 1900. There was water out over the ground there at that time. That is where I saw no hay stacked the previous year. Water was being run on the meadow ground; it was being scattered out in places. I wouldn't dare estimate the meadow I saw water on in places. I saw water on the pasture. Some of the pasture had water scattered over it. I didn't go up to the Bird's Nest in 1901. When I had charge in 1911 I had the lower part of the Bird's Nest field irrigated. It was pasture land and meadow land too. In 1911 I had pasture lands put under irrigation in what was known as the island and Middle Stacks. There was pasture land all up and down the river. There was some at the Bird's Nest that year.

RE-DIRECT EXAMINATION:

From year to year while I knew the ranch the wild meadow was practically about the same. If anything a little less towards the last.

J. E. BOWER, duly called and sworn as a witness on behalf of plaintiffs in rebuttal, testified as follows:
DIRECT EXAMINATION:

I reside at Artesian, Cassia County, Idaho. I have known the Salmon River since 1873. When I first

saw it it was meadow land, grass land and willows, pretty much the same as it is now. I worked there until the fall of 1876 and have been through there off and on until 1903. I worked there as general manager of the outfit pretty nearly five years, until the winter of 1896. I hadn't been back there for eighteen years until last Sunday when I went up the valley and back again. There was no grain raised during my time on the Salmon River. The strip of meadow land along the river when I first saw it would vary in width. It wasn't all solid meadow. The points would run down in it with brush or grease-wood, but I should judge the whole valley for fourteen miles from Bird's Nest to the mouth of Bore's Nest would average in the neighborhood of half a mile wide. This would be in 1893, '94, '95 and '96. In 1873 the conditions were a good deal the same, only the grass land was probably widened out by irrigation afterwards. Jasper Harrell was the owner in 1873. He brought some cattle in there and wintered them in the valley. I think he had come in from California two years before that with a bunch of cattle. There were some beaver dams in the river. Quite a few opposite the Bird's Nest and some in the upper end of the Vineyard field at the mouth of the canyon. The dams caused the water to spread out. The Salmon River for a good many years naturally flooded out and covered a good deal of this meadow land from overflowing, especially if there was a big run-off in May and the fore part of June.

CROSS EXAMINATION:

To a certain extent there has been irrigation all over that valley since 1873.

A. E. ROBINSON, being recalled on behalf of plaintiffs in rebuttal, testified as follows:

DIRECT EXAMINATION:

I was formerly State Engineer of the State of Idaho, and during that time proof of completion under permit No. 2659 was made, on March 29, 1912.

Table No. 4 in the Herrington Report, shows the diversions on the river. It is a summary of the results. It shows the net loss of 9,580 acre feet from May 16 to the end of September. It shows the unmeasured inflow on lands of the Utah Construction Company of 5797 acre feet. The figures given for the first month in that column marked minus 638 acre feet, represents a minus inflow, or, in other words, a loss. The unmeasured inflow as given in this table is the quantity of water which apparently returned to the stream. It is the excess of water at the Bore's Nest gauging station above what would be obtained by subtracting the diversions from the flow of the different streams above that point. It is water which has returned to the river not accounted for by the measurements above. A minus inflow then would be water which is absorbed by the land or by the river bottom that doesn't show up in the lower measuring stations. The totals at the close in the last two columns do not show the net loss due to the diversions of the defendant. The reason is that this table commences on May 16th, which is some considerable time

after irrigation commenced, so the quantity of net loss would be less than it actually was for the season; also the fact that during May there was a quantity of water absorbed by the land on the river bottom in reaching the water table of the valley, to the extent of 638 acre feet in May, which water was afterwards returned to the stream and credited as unmeasured inflow. In those measurements the defendant has not been charged with water diverted before May 16th. It has been credited with returns from that water up until September 31st. Some of the credits allowed the company for return water would result from water diverted before May 16th, and not charged up to the defendant; therefore, the net loss as shown in this table is less than it actually is during the season.

PLAINTIFFS REST.

Thereafter, on August 14th, 1915, and after the Court had filed its decision in writing, the defendant in open Court requested leave to introduce further evidence for the purpose of showing that the water that the Court intended to decree to defendant as a prior right could be most economically used upon the lands of the defendant under the High Line or Harrell Canal. The request was by the Court denied.

PLAINTIFFS' EXHIBITS.

Plaintiffs' Exhibit No. 1.

ARTICLES OF AGREEMENT

Between

James Rudolph Garfield, Secretary of the Interior,

for and on behalf of the United States of America,
and

Frank R. Gooding, Governor and President of the State Board of Land Commissioners of Idaho, for and on behalf of the State of Idaho.

These articles of agreement, made and entered into this 10th day of April, A. D. 1908, by and between James Rudolph Garfield, Secretary of the Interior, for and on behalf of the United States of America, party of the first part, and Frank R. Gooding, Governor and President of the State Board of Land Commissioners of Idaho, for and on behalf of the State of Idaho, party of the second part,

WITNESSETH, That in consideration of the stipulations and agreements hereinafter made, and of the fact that said State has, under the provisions of section 4 of the act of Congress approved August 18, 1894, of the act of Congress approved June 11, 1896, of the act of Congress approved March 3, 1901, through James Stephenson, Jun., its proper officer, thereunto duly authorized, presented its proper application for certain lands situated within said State and alleged to be desert in character, and particularly described as follows, to-wit:

List No. 14.

and has filed a map of said lands, and exhibited a plan showing the mode by which it is proposed that said lands shall be irrigated and reclaimed, and the source of the water to be used for that purpose, the said party of the first part contracts and agrees, and,

by and with the consent and approval of Theodore Roosevelt, President thereof, hereby binds the United States of America to donate, grant, and patent to said State, or to its assigns, free from cost for survey or price, any particular tract or tracts of said lands, whenever an ample supply of water is actually furnished in a substantial ditch or canal, or by artesian wells or reservoirs, to reclaim the same, in accordance with the provisions of said acts of Congress, and with the regulations issued thereunder, and with the terms of this contract, at any time within ten years from the date of the approval of the said map of the lands.

It is further understood that said State shall not lease any of said lands or use or dispose of the same in any way whatever, except to secure their reclamation, cultivation, and settlement; and that in selling and disposing of them for that purpose the said State may sell or dispose of not more than 160 acres to any one person, and then only to bona fide settlers who are citizens of the United States, or who have declared their intention to become such citizens; and it is distinctly understood and fully agreed that all persons acquiring title to said lands from said State prior to the issuance of patent, as hereinafter mentioned, will take the same subject to all the requirements of said acts of Congress and to the terms of this contract, and shall show full compliance therewith before they shall have any claim against the United States for a patent to said lands.

It is further understood and agreed that said State

shall have full power, right and authority to enact such laws, and from time to time make and enter such contracts and agreements, and to create and assume such obligations in relation to and concerning said lands as may be necessary to induce and cause such irrigation and reclamation thereof as is required by this contract and the said acts of Congress; but no such law, contract, or obligation shall in any way bind or obligate the United States to do or perform any act not clearly directed and set forth in this contract and said acts of Congress, and then only after the requirements of said acts, and this contract have been fully complied with.

Neither the approval of said application, map, and plan, nor the segregation of said land by the Secretary of the Interior, nor anything in this contract, or in the said acts of Congress, shall be so construed as to give said State any interest whatever in any lands upon which, at the date of filing of the map and plan hereinbefore referred to, there may be an actual settlement by a bona fide settler, qualified under the public land laws to acquire title thereto.

It is further understood and agreed that as soon as an ample supply of water is actually furnished in a substantial ditch or canal, or by artesian wells or reservoirs, to reclaim a particular tract or tracts of said lands, the said State, or its assigns, may make proof thereof under and according to such rules and regulations as may be prescribed therefor by the Secretary of the Interior, and as soon as such proof shall have been examined and found to be satisfac-

tory, patents shall issue to said State, or to its assigns, for the tracts included in said proof.

The said State shall, out of the money arising from its disposal of said lands, first reimburse itself for any and all costs and expenditures incurred by it in irrigating and reclaiming said lands, or in assisting its assigns in so doing, and any surplus then remaining after the payment of the cost of such reclamation shall be held as a trust fund to be applied to the reclamation of other desert lands within said State.

This contract is executed in duplicate, one copy of which shall be placed of record and remain on file with the Commissioner of the General Land Office, and the other shall be placed of record and remain on file with the proper officer of said State, and it shall be the duty of said State to cause a copy thereof, together with a copy of all rules and regulations issued thereunder or under said Acts of Congress, to be spread upon the deed records of each of the Counties in said State in which any of said lands shall be situated.

In testimony whereof, the said parties have hereunto set their hands, the day and year first herein written.

JAMES RUDOLPH GARFIELD,

(Seal)

Secretary of the Interior.

STATE OF IDAHO,

By F. R. Gooding, Governor and
Chairman of State Board of Land
Commissioners of the State of
Idaho.

APPROVAL.

To all to whom these presents shall come, Greeting:

Know ye that I, Theodore Roosevelt, President of the United States of America, do hereby approve and ratify the attached contract and agreement, made and entered into on the 10th day of April, 1908, by and between James Rudolph Garfield, Secretary of the Interior, for and on behalf of the United States, and F. W. Gooding, Governor, for and on behalf of the State of Idaho, under section 4 of the act of Congress approved August 18, 1894, the act approved June 11, 1896, and the act approved March 3, 1901.

THEODORE ROOSEVELT.

“F”—C. C. K.

GENERAL LAND OFFICE.

Railroad Grants and Right-of-way Division.

April 10, 1908.

It is hereby certified that this contract has been examined and compared with the duplicate, and found to be identical therewith; that the tracts therein described are duly indicated on the map filed with said contract, and are shown by the records of this office to be vacant and unappropriated.

It is further certified that the records of this office have been examined; the lands were not returned as mineral, are not in conflict with any mining claim, location, or entry, and are not within any withdrawn coal area.

CHARLES H. KERAN,

S. S. MARR,

Examiner.

Chief of Subdivision.

State of Idaho,
County of Ada,—ss.

I, N. Jenness, Register of the State Board of Land Commissioners of the State of Idaho, do hereby certify that the foregoing is a true and correct copy of Articles of Agreement between the State and the United States Government, except as to land descriptions covering Idaho Segregation List No. 14.

IN WITNESS WHEREOF, I have caused the seal of the State Board of Land Commissioners to be affixed this 19th day of April, 1915.

N. JENNESS,
Register.

(Seal)

PLAINTIFFS' EXHIBIT NO. 2.

(Plaintiffs' Exhibit No. 2 is the same as Plaintiffs' Exhibit "A" attached to the Bill of Complaint, and appears in the printed transcript of the Bill of Complaint.)

PLAINTIFFS' EXHIBIT NO. 3.

No. 3493.

APPLICATION FOR PERMIT

To Appropriate the Public Waters of the State of
Idaho.

1. Name of Applicant: John E. Hayes.

Post Office address: P. O. Twin Falls.

County, Twin Falls.

II. The financial resources of the applicant are:

(a) Cash on hand, \$5000.00—Sale of Treasury Stock and Bonds.

2. The quantity of water claimed is 1500 cubic feet per second.
3. Source of water supply, Salmon River: All flood, storm and unappropriated waters of said stream and its numerous branches to be stored in reservoirs to be erected on said stream. County of Twin Falls.
4. Location of point of diversion: SE 4 Sec. 18, T. 14 S. R. 15 E. B. M. Being about 600 ft. NE of point where county road crosses said stream, pt. of diversion bears N. $9^{\circ} 00'$ W. 1840 ft. from cor. of Secs. 17, 18, 19 and 20, T. 14 S. R. 15 E. B. M.
5. To be used for:
 - I. Irrigation and domestic use:
 - (a) Number of acres to be irrigated, 150,000 acres.
 - (b) In the following legal subdivisions: T. 11 S. R. 14 E.; Tps. 11, 12, 13 & 14 S. R. 15 E.; T. 12 S. R. 14 E.; Tps. 11, 12 & 13 S. R. 16 E.; Tps. 11 & 12 S. R. 17 E.; Tps. 11 & 12 S. R. 18 E. See list hereto appended.
6. Estimated cost of works, \$1,800,000.00.
7. Description of works for diversion:
 - I. Kinds of works: Loose *roce*, diversion dam and ditch.
 - II. Dimensions of works:
 - (a) Height of dam 110 feet, length of dam at top 190 feet, length of dam at bottom 110 feet, material used in construction, stone and earth.

- (b) Capacity of reservoir—See note.
 - (c) Size of headgate, width 24 feet, height 7 feet.
 - (d) Ditch (flume or pipe) width at bottom 60 feet, width at water line 88 feet, depth of water 7 feet. Average grade per mile is 1 foot. Length of ditch is 25.7 miles, and it crosses the following quarter sections: (*) (See list below) to . . . which is the point of intended use.
8. Time required for the completion of the construction of such work is 5 years.
 9. Time required for the complete application of the water to the proposed use is 4 additional years.

Remarks:

APPROVAL OF STATE ENGINEER.

The number of this permit is 2659.

Date of first receipt of application, 9:00 a. m. December 29, 1906.

Returned to applicant for correction January 28, 1907.

Corrected application received March 28, 1907.

Recorded in Book 8, page 2659. Approved March 30, 1907.

This is to certify that I have examined the within application for a permit to appropriate the public waters of the State of Idaho and hereby grant the same, subject to the following limitations and conditions:

Good and sufficient bond to be filed in the sum of \$3000.00 on or before May 29, 1907.

One-fifth of the works above specified to be completed on or before September 30, 1909.

The whole of said work to be completed on or before March 30, 1912.

The time for the proof of beneficial use of water appropriated in accordance herewith, to extend to March 30, 1916.

Witness my hand this 30th day of March, 1907.

JAS. STEPHENSON, JR.,
State Engineer.

Warranty deed, dated 26th day of January, 1912, from John E. Hayes and Anna E. Hayes, his wife, to Twin Falls Salmon River Land and Water Company, which conveys to said company "All that certain permit issued by the State of Idaho for the appropriation of 1500 cubic feet per second of the waters of Salmon River, Twin Falls County, State of Idaho, dated March 30, 1907, numbered 2659, and recorded in Book 8 at page 2659 of the Records of the State Engineer at his office in Boise, Idaho."

Certificate of acknowledgment in due form as required by the laws of Idaho attached.

Endorsed: Received and filed for record in the office of the State Engineer at Boise, Idaho, at 9:30 A. M., January 30, 1912.

(Signed) A. E. ROBINSON,
State Engineer.

Permit No. 2659.

CERTIFICATE OF COMPLETION OF WORKS.

To All Whom It May Concern:

This is to certify that Twin Falls Salmon River Land & Water Company, of Milner, County of Twin Falls and State of Idaho, the holder of Permit No. 2659, issued upon Application No. 3493, bearing date of priority of December 29, 1906, authorizing the diversion of 1500 second feet of the waters of Salmon River, County of Twin Falls, State of Idaho, for irrigation and domestic purposes, has fully complied with the provisions of the laws of the State of Idaho relating to the proof of completion of the works of diversion set out and described in said permit; that the dam constructed under the provisions of this permit is capable of diverting water at the rate of 1500 cubic feet per second; that the outlet tunnel from the reservoir has a capacity of 1500 cubic feet per second; that the main canal immediately below the outlet tunnel has a capacity of 1250 cubic feet per second; that the reservoir caused to be formed by the construction of the aforesaid dam has a capacity, exclusive of dead water, of 199,973 acre feet; that the point of diversion of said waters is South $56^{\circ} 43'$ West 6883' from the quarter corner common to sections 8 and 9, township 14 South, Range 15 East of Boise Meridian; and that the lands proposed to be irrigated by the use of said water are described as follows, to-wit: * * * * *

Witness my hand this 14th day of May, A. D.
1912.

A. E. ROBINSON,
State Engineer.

Bond: From John E. Hays, as principal, and H. L. Hollister, of Chicago, Illinois, and Geo. F. Sprague and I. B. Perrine, of Twin Falls, Idaho, as sureties, to the State of Idaho, for \$3,000.00, for the faithful completion of works of diversion as specified in application No. 3493 and Permit No. 2659, in the manner and form prescribed therein and within the time therein allowed.

Affidavit of justification of sureties in due form attached.

Endorsed: Received and filed for record in the office of the State Engineer at Boise, Idaho, at 3:00 p. m., May 14, 1907.

JAS. STEPHENSON, JR.,

State Engineer.

Approved May 14, 1907.

Jas. Stephenson, Jr.,

State Engineer.

Certificate in due form by State Engineer of the State of Idaho, dated the 19th day of April, 1915, that the foregoing documents, constituting Plaintiffs' Exhibit No. 3, are full, true and correct copies as the same appear on file in the State Engineer's office.

PLAINTIFFS' EXHIBIT NO. 4.

No. 4313.

APPLICATION FOR PERMIT

To Appropriate the Public Waters of the State of
Idaho.

1. Name of Applicant: John E. Hayes.

Postoffice address: Twin Falls. County: Twin
Falls. State: Idaho.

II. The financial resources of the applicant are:

- (a) Cash on hand \$5000.00 sale of Treasury Stock & Bonds.
2. The quantity of water claimed is 500 cubic feet per second.
3. Source of water supply: Salmon river, all flood, store and unappropriated waters of said stream and its numerous branches to be stored in reservoir to be erected on said stream. County of Twin Falls.
4. Location of point of diversion: SE 4 Sec. 18, T. 14 S. R. 15 E. B. M. Pt. of diversion bears N. 9° W. 1840 ft. from the cor. of Secs. 17, 18, 19 & 20, T. 14 S. R. 15 E. B. M.
5. To be used for:
 - I. Irrigation and domestic use:
 - (a) Amount of land to be irrigated: 150,000 acres.
 - (b) In the following legal subdivisions: T. 11 S. R. 14 E. Tps. 11, 12, 13 & 14 S. R. 15 E. T. 12 S. R. 14 E. Tps. 11, 12 and 13 S. R. 16 E. Tps. 11, 12 S. R. 17 E. Tps. 11-12 S. R. 18 E. B. M. See list appended.
6. Estimated cost of works: \$1,800,000.00.
7. Description of works for diversion:
 - I. Kind of works: Reservoir diversion dam and ditches.
 - II. Dimensions of works:
 - (a) Height of dam 200 feet, length of dam at top 1500 feet, length of dam at bottom 110 feet. Material used in construction: Concrete, stone, wood, earth and steel.

- (b) Capacity of reservoir: 300,000 acre feet.
 - (c) Size of headgate: Width 24 feet, height 7 feet.
 - (d) Conduit ditch, width at bottom 60 feet, width at water line 88 feet, depth of water 7 feet. Average grade per mile is 1 ft. Length of conduit is 25.7 miles, and it crosses the following quarter sections: See list below, to land described in 5 I (b) above which is the point of intended use.
8. Time required for the completion of the construction of such work is 5 years.
9. Time required for the complete application of the water to the proposed use is 4 additional years.

BE IT KNOWN That the undersigned hereby makes application for a permit to appropriate the public waters of the State of Idaho as herein set forth.

JOHN E. HAYES,

Applicant.

APPROVAL OF STATE ENGINEER.

The number of this permit is 3267.

Date of first receipt of application, 2:45 p. m., August 22, 1907.

Returned to applicant for correction September 21, 1907.

Corrected application received November 20, 1907.

Recorded in Book 9, page 3267. Approved November 23, 1907.

This is to certify that I have examined the within application for a permit to appropriate the public waters of the State of Idaho and hereby grant the

same, subject to the following limitations and conditions:

Good and sufficient bond to be filed in the sum of \$1,000 on or before January 22, 1908.

One-fifth of the work above specified to be completed on or before May 23, 1910.

The whole of said work to be completed on or before November 23, 1912.

The time for proof of beneficial use of water appropriated in accordance herewith, to extend to November 23, 1916.

Witness my hand this twenty-third day of November, 1907.

JAS. STEPHENSON, JR.,
State Engineer.

Warranty Deed: From John E. Hayes, of Denver, County of Denver, State of Colorado, to the Twin Falls Salmon River Land and Water Company, dated the 19th day of November, 1912. Conveys: "All that certain permit issued by the State of Idaho for the appropriation of 500 cubic feet per second of the waters of Salmon River, Twin Falls County, State of Idaho, dated November 20, 1907, numbered 3267, and recorded in Book 9 at page 3267, of the records of the State Engineer at his office in Boise, Idaho."

Certificate of acknowledgment in due form as required by the laws of Idaho is attached.

Endorsed: Received and filed for record in the office of the State Engineer at Boise, Idaho, at 9:00 a. m., Dec. 13, 1912.

A. E. ROBINSON,
State Engineer.

Permit No. 3267.

CERTIFICATE OF COMPLETION OF WORKS.

To All Whom It May Concern:

This is to certify that the Twin Falls Salmon River Land and Water Company, of Milner, County of Twin Falls and State of Idaho, the holder of Permit No. 3267, issued upon Application No. 4313, bearing date of priority of August 22, 1907, authorizing the diversion of 500 second feet of the waters of Salmon River, and its branches, County of Twin Falls, State of Idaho, for irrigation and domestic purposes, has fully complied with the provisions of the laws of the State of Idaho relating to the proof of completion of the works of diversion set out and described in said permit; that the dam constructed under this permit is capable of diverting water at the rate of 1500 cubic feet per second; that the outlet tunnel from the reservoir has a capacity of 1500 cubic feet per second; that the main canal immediately below the outlet tunnel has a capacity of 1250 cubic feet per second; that the reservoir caused to be formed by the construction of the aforesaid dam has a capacity, exclusive of dead water, of 199,973 acre feet; that the point of diversion of said waters is N. 9° W. 1840 feet from corner of sections 17, 18, 19 & 20, T. 14 S. R. 15 E. B. M., in the SE $\frac{1}{4}$ of Section 18, T. 14 S. R. 15 E. B. M.; that the said diversion works above referred to, including dam, tunnel and reservoir, are the identical diversion works referred to in the Certificate of Completion of Works heretofore issued by the State Engineer in connection with Permit No.

2659; and that the lands proposed to be irrigated by the use of said waters are described as follows, to-wit: * * * * *

Witness my hand this 25th day of January, A. D. 1913.

A. E. ROBINSON,
State Engineer.

Bond: From George F. Sprague (assignee of John E. Hayes), of Twin Falls, Idaho, as principal, and C. B. Hurtt and S. H. Hays, of Boise, Idaho, as sureties, to the State of Idaho, for \$1,000.00, for the faithful completion of works of diversion as specified in Application No. 4313 and Permit No. 3267, in the manner and form prescribed therein and within the time therein allowed.

Affidavit of justification of sureties in due form attached.

Endorsed: Received and filed for record in the office of the State Engineer at Boise, Idaho, at 3:06 p. m., January 20, 1908.

JAS. STEPHENSON, JR.,
State Engineer.

Certificate in due form by State Engineer of the State of Idaho, dated the 19th day of April, 1915, that the foregoing documents, constituting Plaintiffs' Exhibit No. 4, are full, true and correct copies as the same appear on file in the State Engineer's office.

PLAINTIFFS' EXHIBIT NO. 5.

No. 7466.

APPLICATION FOR PERMIT

To Appropriate the Public Waters of the State of
Idaho.

1. Name of applicant: D. C. MacWatters.
Postoffice address: Milner. County: Twin Falls.
State: Idaho.

II. The financial resources of the applicant are:

(d) Other resources: \$10,000.00.

2. The quantity of water claimed is 1000 cubic feet per second.
3. Source of water supply: Salmon River.
County of Twin Falls.
4. Location of point of diversion: NE $\frac{1}{4}$ Sec. 18,
Tp. 14 S. R. 15 E. Dam is N. 6° 41' W. 4169'
from SE corner Sec. 18, Tp. 14 S. R. 15 E.

5. To be used for:

I. Irrigation and domestic use:

(a) Amount of land to be irrigated: 132,744.-
36.

(b) In the following legal subdivisions: See
list herewith, "A."

6. Estimated cost of works: \$1,700,000.00.
7. Description of works for diversion:

I. Kind of works: Dam, tunnels, ditch.

II. Dimensions of works:

(a) Height of dam 220 feet, length of dam at
top 450 feet, length of dam at bottom 250
feet. Material used in construction: Con-
crete and rock.

- (b) Capacity of reservoir: 230,000 acre feet.
 - (c) Size of headgate: Width 14 feet, height 10 feet.
 - (d) Conduit tunnel, width at bottom 11 feet, width at water line 11 feet, depth of water 10 feet. Average grade per mile is 5.28 feet. Length of conduit is 12 miles and it crosses the following quarter sections: See list herewith, "B." Length of conduit refers to open canal section after leaving the tunnel. Canal section 50 feet wide on bottom, 70 feet at water line and 5 feet deep, to land described in 5 I (b) above which is the point of intended use.
- 8. Time required for the completion of the construction of such work is five years.
 - 9. Time required for the complete application of the water to the proposed use is four additional years.

BE IT KNOWN That the undersigned hereby makes application for a permit to appropriate the public waters of the State of Idaho as herein set forth.

D. C. MacWATTERS,

Applicant.

By S. H. HAYS, Agent.

APPROVAL OF STATE ENGINEER.

The number of this permit is 5519.

Date of first receipt of application: 3:20 p. m., September 7, 1909.

Returned to applicant for correction: October 7, 1909.

Corrected application received: December 4, 1909.
Recorded in Book 16, page 5519. Approved December 4, 1909.

This is to certify that I have examined the within application for a permit to appropriate the public waters of the State of Idaho and hereby grant the same, subject to the following limitations and conditions:

Good and sufficient bond to be filed in the sum of \$2,000.00 on or before February 2, 1910.

One-fifth of the work above specified to be completed on or before June 4, 1912.

The whole of said work to be completed on or before December 4, 1914.

The time for proof of beneficial use of water appropriated in accordance herewith, extended to December 4, 1918.

Witness my hand this fourth day of December, 1909.

JAS. STEPHENSON, JR.,

State Engineer.

Warranty Deed: Dated 30th day of September, 1914, from D. C. MacWatters, of Jerome, Lincoln County, Idaho, to Twin Falls Salmon River Land and Water Company. Conveys: "That certain Water Right evidenced by Permit No. 5519, issued by the State Engineer of Idaho, under date of December 4th, 1909, granting to said D. C. MacWatters the right to appropriate 1000 second feet of the waters of the Salmon River in the State of Idaho, as more particularly set forth in said permit, recorded in the

office of the State Engineer of Idaho, in Record of Water Permits, at page 5519."

Certificate of acknowledgment in due form as required by the laws of Idaho is attached.

Endorsed: Received and filed for record in the office of the State Engineer at Boise, Idaho, at 9:00 A. M., October 26, 1914.

HERBERT WING,
Acting State Engineer.

BOND: From Twin Falls Salmon River Land & Water Company, as principal, and The Title Guaranty & Surety Company, a corporation of Pennsylvania, surety, to the State of Idaho, for the sum of \$2,000.00; to secure the completion of the irrigation system specified in application numbered 7466 and permit numbered 5519. Said bond is in the form and is executed in the manner required by the laws of the State of Idaho.

Endorsed: Approved. Date, Feb. 1st, 1910.

JAS. STEPHENSON, JR.,
State Engineer.

Received and filed for record in the office of the State Engineer, 10:00 a. m., January 12, 1910.

JAS. STEPHENSON, JR.,
State Engineer.

Certificate in due form by State Engineer of the State of Idaho, dated the 19th day of April, 1915, that the foregoing documents, constituting Plaintiffs' Exhibit No. 5, are full, true and correct copies as the same appear on file in the State Engineer's office.

PLAINTIFFS' EXHIBIT NO. 6.

Plaintiffs' Exhibit No. 6 is a copy of the agreement between Twin Falls Salmon River Land and Water Company and the purchasers of water rights from said company, in due form as required by the provisions of the contract (Plaintiffs' Exhibit No. 2) between the State of Idaho and the Twin Falls Salmon River Land and Water Company. It also contains form of certificate of stock in Salmon River Canal Company, Limited, to be issued to purchasers of water rights. Said certificate is also in due form as required by the provisions of Plaintiffs' Exhibit No. 2.

PLAINTIFFS' EXHIBIT NO. 31.
DUTY OF WATER FOR ALFALFA.

Plat No.	Soil moisture at beginning of irrigation season. Per cent.	Precipitation during season in feet	Number of Irrigations	Length of irrigation season in days	Total water applied in acre feet	Soil moisture at close of season. Per cent.	Yield of cured hay in tons per acre	Tons of hay per acre foot of water
1	13.91	.299	3	78	1.1887	10.08	3.782	3.18
2	14.36	.299	4	76	1.5637	10.93	4.421	2.83
3	17.00	.299	6	87	1.9529	15.00	5.309	2.72
4	13.74	.299	7	103	2.6134	17.12	5.603	2.14
5	13.39	.299	10	99	2.9929	16.92	6.597	2.20
6	12.64	.299	11	110	3.7806	19.44	6.805	1.80

These plats were given their first irrigations about the middle of May, and all water was applied by the border method. The difference in amount of water applied caused a slight variation in time of blooming, the driest plats having

NOTE: In all of the tables in this bulletin the amounts given in the column "Total Water Applied" do not include precipitation.

DEFENDANT'S EXHIBIT NO. 2.

"HARRELL DITCH

SPARKS-HARRELL CO.

NOTICE OF LOCATION.

Sparks-Harrell Co.

Harrell Ditch.

Notice is hereby given, that the Sparks-Harrell Company, a corporation, organized and existing under the laws of the State of California, have on the first day of November, 1892, located and claims, five thousand miners' inches of water from the natural course and flow of Salmon River, in Elko County, Nevada, all for irrigation and domestic purposes.

From the point of diversion of the waters from said Salmon River (and where this notice is posted) the northeast corner of section 9, township 45 North, Range 54 East, M. D. M. Bears N. 50° 30' East, 22 chains.

The water was diverted from the river on Nov. 1st, 1892, by means of a ditch ten feet wide on top and four feet deep at the river and this ditch was constructed in an easterly direction about seven chains to an old slough, thence the line of ditch runs northerly about one mile in said slough which was cleaned out for the proper flow of water; from thence the line of ditch runs northeasterly about nine miles to its northern terminus in Section 31, Township 47 North, Range 65 East, M. D. M., and from the old slough northerly, the ditch will be ten feet wide and 3 feet deep, and have a grade of five feet to one mile, and the waters of the ditch will irrigate about 2000 acres of mesa land, and 2000 acres of bottom land between

the ditch and the river. The ditch is more particularly described by the accompanying plat, which is hereby made a part of this notice. The name of this ditch shall be the "Harrell Ditch."

THE SPARKS-HARRELL CO.

By Jno. Sparks, Prest.

State of Nevada,
County of Washoe,—ss.

John Sparks, being duly sworn, deposes and says: I am the President of the Sparks-Harrell Company, a corporation organized and existing under the laws of the State of California, and as such officer signed the name of said company to the foregoing water right location on Salmon River, Elko County, Nevada, and, having read its contents, further swear that the location was made by said company in its corporate name, for the uses and purposes therein named.

JNO. SPARKS, President,

The Sparks-Harrell Company.

Subscribed and sworn to before me this 28th day of November, 1892.

HENRY B. RULE,

(Seal) Notary Public, Washoe County, Nevada.

(Map attached showing location of ditch and lands to be irrigated therefrom.)

"UPPER VINEYARD DITCH

OWYHEE RIVER

WATER AND DITCH LOCATION NOTICE.

Notice is hereby given that the undersigned, The Sparks-Harrell Company, a corporation organized and existing under and by virtue of the laws of the State of California, and having its principal office

and place of business in the town of Visalia, County of Tulare, State of California, has this 6th day of May, 1899, appropriated 500 cubic feet per second of the waters of Salmon River in Township Forty-four (44) North, Range Sixty-three East M. D. M., the same being situated in, or flowing through Elko County, State of Nevada. Said water to be used for irrigation, domestic, power and other useful purposes upon lands described as follows, to-wit:

Parts of Sections	Section	Township Range	
		North	East
NE $\frac{1}{4}$ of	16	44	63
All of	15	"	"
NE $\frac{1}{4}$ of NW $\frac{1}{4}$	22	"	"
NW $\frac{1}{4}$ of NE $\frac{1}{4}$	22	"	"
SE $\frac{1}{4}$ of	10	"	"
NW $\frac{1}{4}$ of NW $\frac{1}{4}$	14	"	"
N $\frac{1}{2}$ of	11	"	"
SW $\frac{1}{4}$ of	11	"	"
NW $\frac{1}{4}$ of SE $\frac{1}{4}$	11	"	"
NW $\frac{1}{4}$ of NW $\frac{1}{4}$	12	"	"
SW $\frac{1}{4}$ of	1	"	"
NE $\frac{1}{4}$ of	1	"	"
SE $\frac{1}{4}$ of NW $\frac{1}{4}$	1	"	"

Said waters are to be conducted through a ditch which we intend to construct and maintain, to be known and called the Upper Vineyard Ditch.

Said ditch is described as follows, to-wit:

Commencing at a point on Salmon River in Section Eight (8) T. 44 N. R. 63 E., and running thence southeasterly across parts of Sections 8, 9, 16 and 15

to and upon Section 22; thence northeasterly across parts of sections 22, 15, 14, 12, 11 and 1; all in T. 44 N., R. 63 E., and terminating at the lower end in said Section 1. The upper head or terminus of said ditch is about two (2) miles above what is known as the "Vineyard House," and the lower terminus is near the head of the canyon below what is known as the "Vineyard Bottom" or "Ranch," and the length of said ditch is about seven and one-half ($7\frac{1}{2}$) miles, all of which fully appears in the plat of said ditch and land to be irrigated herewith annexed, which is made a part hereof.

In witness whereof, these presents are subscribed by the President and Secretary of said Company and the corporate seal attached, on the day and year first above written.

JOHN SPARKS, President.

ANDREW J. HARRELL, Secretary.

(Corporate Seal)

Map attached showing location of ditch and lands to be irrigated therefrom.)

State of Nevada,
County of Elko,—ss.

On the 25th day of May, A. D. 1899, personally appeared before me Edward C. McClellan, a Notary Public in and for said County, John Sparks and Andrew J. Harrell, personally known to me to be the persons described in, and whose names are subscribed to, and who executed the foregoing instrument, and who each personally acknowledged to me that as President and Secretary of The Sparks-Harrell Com-

pany, he executed the same freely and voluntarily and for the uses and purposes therein mentioned.

In Witness Whereof, I have hereunto set my hand and affixed my Official Seal, the day and year last above written.

EDWARD C. McCLELLAN,

(Notarial Seal)

Notary Public.

Filed for record at request of E. C. McClellan on the 26th day of May, 1899, at 3 o'clock P. M.

C. A. WATKINS,
County Recorder.

"HARRELL DITCH.

SALMON RIVER.

WATER AND DITCH LOCATION NOTICE.

Notice is hereby given that the undersigned, The Sparks-Harrell Company, a corporation organized and existing under and by virtue of the laws of the State of California and having its principal office and place of business in the town of Visalia, County of Tulare, State of California, has appropriated 200 cubic feet per second of the waters of Salmon River for use on lands in Township 45, 46 and 47 North, Range 64 East, and Township 46 and 47 North, Range 65 East, Mount Diablo Base and Meridian, the same being situated in or flowing through Elko County, State of Nevada. Said water to be used for irrigation, domestic and other useful purposes upon lands described as follows, to-wit:

Parts of Sections	Section	Township	
		North	East
NE $\frac{1}{4}$ of NE $\frac{1}{4}$	9	45	64
E $\frac{1}{2}$ of SE $\frac{1}{4}$	4	"	"

W $\frac{1}{2}$ of SW $\frac{1}{4}$	3	“	“
NW $\frac{1}{4}$ of	3	“	“
SE $\frac{1}{4}$ of SE $\frac{1}{4}$	33	46	64
SW $\frac{1}{4}$ of	34	“	“
E $\frac{1}{2}$ of NW $\frac{1}{4}$	34	“	“
NW $\frac{1}{4}$ of NE $\frac{1}{4}$	34	“	“
E $\frac{1}{2}$ of	27	“	“
NW $\frac{1}{4}$ of	26	“	“
S $\frac{1}{2}$ of SW $\frac{1}{4}$	23	“	“
NE $\frac{1}{4}$ of SW $\frac{1}{4}$	23	“	“
E $\frac{1}{2}$ of NW $\frac{1}{4}$	23	“	“
E $\frac{1}{2}$ of	23	“	“
NW $\frac{1}{4}$ of	24	“	“
W $\frac{1}{2}$ of	13	“	“
NE $\frac{1}{4}$ of	13	46	64
E $\frac{1}{2}$ of	14	“	“
All of	12	“	“
E $\frac{1}{2}$ of	11	“	“
All of	1	“	“
E $\frac{1}{2}$ of	2	“	“
W $\frac{1}{2}$ of NW $\frac{1}{4}$	7	46	65
W $\frac{1}{2}$ of	6	“	“
NE $\frac{1}{4}$ of	6	“	“
NW $\frac{1}{4}$ of SE $\frac{1}{4}$	6	“	65
E $\frac{1}{2}$ of	35	47	64
All of	36	“	“
All of	25	“	“
E $\frac{1}{2}$ of	26	“	“
SE $\frac{1}{4}$ of	23	“	“
All of	24	“	“
SW $\frac{1}{4}$ of	19	47	65

S $\frac{1}{2}$ of SE $\frac{1}{4}$	19	“	“
SW $\frac{1}{4}$ of NW $\frac{1}{4}$	19	“	“
N $\frac{1}{2}$ of	30	“	“
NW $\frac{1}{4}$ of SE $\frac{1}{4}$	30	“	“
SW $\frac{1}{4}$ of	30	“	“
W $\frac{1}{2}$ of	31	“	“

Said water is being conducted through a ditch which we intend to construct and maintain, to be known and called The Harrell Ditch. Said ditch was started on November 1st, 1892, and recorded in Book 2, page 202, Water Records of Elko County, Nevada, according to law, and water therefrom used in irrigating lands in Sections 9, 4 and 3, T. 45 N., R. 64 E., and Sections 33, 34, 26 and 27, T. 46 N., R. 64 E., and in June, 1894, the ditch had been constructed and partly finished to the SE $\frac{1}{4}$ of Section 27, T. 46 N., R. 64 E.

September 22nd, 1897, a resurvey was made of the lower part of the ditch, the grade changed from 5 feet to 2 2-3 feet per mile, and size of 20 ft. on top, 10 ft. on bottom and 5 ft. deep, and a sufficient quantity of water is claimed to irrigate the lands heretofore described as to be irrigated therefrom.

This new Location Notice is made to describe all changes made from the survey of Nov. 1st, 1892, and give more definite description of the lands covered and to be irrigated therefrom; and a sufficient amount of water is claimed to irrigate said lands and claim such waters from November 1st, 1892.

Said ditch is described as follows, to-wit:

Commencing at a point on Salmon River from

whence the corner to Sections 3, 4, 9 and 10, T. 45 N., R. 64 E., bears N. 50° 30' E. 22 chains distant. At this point is a dam in the river and ditch, 15 ft. wide, 4 ft. deep, constructed about 7 chains easterly to what is known as the "Roland East Side Slough;" thence following in said slough, northeasterly about two miles upon the northwest quarter of Section 34, T. 46 N., R. 64 E. Thence the ditch starts again and is to be constructed as fast as practicable in a northeasterly direction to the northeast quarter of Section 30, T. 47 N., R. 65 E. The total length of said ditch, including said Roland East Side Slough, which forms a part thereof, and has been cleaned out and enlarged to a sufficient carrying capacity, is about thirteen (13) miles. The ditch as far as constructed is 20 ft. wide on top, 10 ft. wide on bottom and 4 ft. deep, but the right is claimed to enlarge said ditch, if necessary, to carry a sufficient amount of water to irrigate all of the aforesaid described lands apart of said lands have been irrigated by this corporation and its grantors prior to Nov. 1st, 1892, as is shown by the records of Water Rights of Elko County, Nevada, and this notice is not intended to waive such rights as have secured thereby, but to claim such right to an increased amount of water as shall be necessary to irrigate all lands lying under this ditch not irrigated prior to Nov. 1st, 1892, all of which fully appears in the plat of said ditch and land to be irrigated herewith annexed, which is made a part hereof.

IN WITNESS WHEREOF, These presents are subscribed by the President and Secretary of said

Company and the Corporate Seal attached, on the day and year first above written.

JOHN SPARKS, President.

ANDREW J. HARRELL, Secretary.

(Corporate Seal)

(Map attached showing location of ditch and lands to be irrigated therefrom.)

State of Nevada,
County of Elko,—ss.

On the 9th day of June, A. D. 1899, personally appeared before me, Edward C. McClellan, a Notary Public in and for said County, John Sparks and Andrew J. Harrell, personally known to me to be the persons described in, and whose names are subscribed to, and who executed the foregoing instrument, and who each personally acknowledged to me that as President and Secretary of The Sparks-Harrell Company he executed the same freely and voluntarily and for the uses and purposes therein mentioned.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal, the day and year last above written.

EDWARD C. McCLELLAN,

(Notarial Seal)

Notary Public.

Filed for record at request of E. C. McClellan on the 12th day of June, 1899, at 10 o'clock A. M.

C. A. WATKINS,

(County Recorder's Seal)

County Recorder.

State of Nevada,
County of Elko,—ss.

I, W. G. GREATHOUSE, the duly elected, qualified and acting Recorder and Ex-officio Auditor in and for the County of Elko, DO HEREBY CERTIFY that the above and foregoing sixteen (16) sheets contains a full, true and correct copies of the following Water Rights: HARRELL SALMON RIVER IRRIGATING DITCH, recorded in volume 2 of Miscellaneous Records at page 654; HARRELL DITCH, recorded in volume 2 of Water Rights at page 202; UPPER VINEYARD DITCH, recorded in volume 2 of Water Rights at page 340, and the HARRELL DITCH, recorded in volume 2 of Water Rights at page 343, Records of Elko County, State of Nevada.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal at my office in the County and State aforesaid, this 16th day of April, A. D. 1915.

(Official Seal) W. G. GREATHOUSE,
County Recorder and Ex-officio Auditor in
and for the County of Elko, State of Nevada.

10c Internal Revenue Stamp, duly cancelled, attached. .

State of Nevada,
County of Elko,—ss.

I, ROBERT B. HUNTER, the duly qualified and acting County Clerk of Elko County, State of Nevada, and ex-officio Clerk of the District Court of the Fourth Judicial District of the State of Nevada, in and for the County of Elko, State of Nevada, and the

official custodian of the records thereof, do hereby certify that W. G. Greathouse was duly elected County Recorder of Elko County, State of Nevada, at a general election held on the 3rd day of November, A. D. 1914, for the term of two years from the first Monday of January, A. D. 1915; that he has duly qualified as such County Recorder, and is now the duly qualified and acting County Recorder of the County of Elko, State of Nevada, and the official custodian of the records of said County, at this time.

I further certify that the signature attached to the foregoing certificate of the County Recorder is the true and genuine signature of the said W. G. Greathouse.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the said District Court, this 16th day of April, A. D. 1915.

(Official Seal) ROBERT B. HUNTER,
County Clerk, and Ex-officio Clerk of the District Court of the Fourth Judicial District of the State of Nevada, in and for the County of Elko.

By H. C. SPROULE,
Deputy Clerk.

(10c Internal Revenue Stamp, duly cancelled, attached.)

DEFENDANT'S EXHIBIT NO. 3.

“WATER AND DITCH LOCATION NOTICE.

“NOTICE is hereby given that the undersigned, THE SPARKS-HARRELL COMPANY, a corpora-

tion organized and existing under and by virtue of the laws of the State of California, and having its principal office and place of business in the town of Visalia, County of Tulare, State of California, has this 30th day of October, 1893, appropriated all of the waters of what is known as Hot Creek and Fall Creek flowing in Township 47 North, Range 67 East, M. D. M., the same being situated in or flowing through Elko County, State of Nevada. Said water to be used for irrigation, domestic and other useful purposes upon lands described as follows, to-wit:

Parts of Sections	Section	Township Range	
		North	East
Lots 3 and 4 of.....	5	47	67
NW $\frac{1}{4}$ of SE $\frac{1}{4}$	"	"	"
S $\frac{1}{2}$ of SE $\frac{1}{4}$	"	"	"
SE $\frac{1}{4}$ of SW $\frac{1}{4}$	"	"	"
N $\frac{1}{2}$ of SW $\frac{1}{4}$	"	"	"
Lots 1, 2 and 3 of.....	6	"	"
N $\frac{1}{2}$ of SE $\frac{1}{4}$	"	"	"
NE $\frac{1}{4}$ of SW $\frac{1}{4}$	"	"	"
N $\frac{1}{2}$ of NE $\frac{1}{4}$	8	"	"
SE $\frac{1}{4}$ of NE $\frac{1}{4}$	"	"	"

Said waters are to be conducted through two ditches which we intend to construct and maintain, to be known and called the Upper and Middle Hot Creek Ditches.

Said ditches are described as follows, to-wit: The head of the upper ditch to be at a point about ten chains below the Hot Creek Spring, from which point the corner to Sections 4, 5, 8 and 9, T. 47 N., R. 67 E.,

bears N. $271\frac{1}{2}^{\circ}$ W. 41.00 chains, thence extending west about 8 chains into Fall Creek channel and following said channel northwesterly to the NE $\frac{1}{4}$ of NW $\frac{1}{4}$ of Section 8, where it will leave the channel and be taken in a northwesterly direction, the western terminus to be in the NE $\frac{1}{4}$ of SW $\frac{1}{4}$ of Section 6.

The southeast terminus of the Middle ditch is at a point on Hot Creek from whence the corner to Sections 4, 5, 8 and 9, T. 47 N., R. 67 E., bears N. $111\frac{1}{4}^{\circ}$ W. 23.50 chains, and extending northwesterly the northwest terminus being in the SW $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 5, T. 47 N., R. 67 E.

All of which fully appears in the plat of said ditches and land to be irrigated herewith annexed, which is made a part hereof.

In witness whereof, these presents are subscribed by the President and Secretary of said Company and the Corporate Seal attached, on the day and year first above written.

JOHN SPARKS, President.

ANDREW J. HARRELL, Secretary.

(Corporate Seal)

(Map attached showing locations of ditches and of lands to be irrigated.)

State of Nevada,
County of Elko,—ss.

On the 30th day of October, A. D. 1893, personally appeared before me, Edward C. McClellan, a Notary Public in and for said County, JOHN SPARKS and ANDREW J. HARRELL, personally known to me to be the persons described in, and whose

names are subscribed to, and who executed the foregoing instrument, and who each personally acknowledged to me that as President and Secretary of THE SPARKS-HARRELL COMPANY, he executed the same freely and voluntarily and for the uses and purposes therein mentioned

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal, the day and year last above written.

EDWARD C. McCLELLAN,
(Notarial Seal) Notary Public.

Endorsed: "State of Nevada, County of Elko. Filed for record at request of A. J. Harrell on the 14th day of Dec., 1893, at 9 o'clock A. M., and recorded in Book 2 of Water Rights, page 212 to 214, inclusive, records of said County.

GEO. H. MEIGO, County Recorder.

By Deputy."

(Township Plat of Township 47 North, Range 67 East, M. D. B. & M., is attached, showing locations of ditches and lands to be irrigated therefrom in said township.)

DEFENDANT'S EXHIBIT NO. 8.

"WATER AND DITCH LOCATION NOTICE.

NOTICE is hereby given that the undersigned, THE SPARKS-HARRELL COMPANY, a corporation organized and existing under and by virtue of the laws of the State of California, and having its principal office and place of business in the town of Visalia, County of Tulare, State of California, has

this 4th day of October, 1893, appropriated 11 cubic feet per second of the waters of the North, Middle and South Forks of Trout Creek, flowing through Section 3 of Township 44 North, Range 65 East, and Sections 23, 26, 35 and 36 of Township 45 North, Range 65 East, M. D. M., the same being situated in, or flowing through Elko County, State of Nevada. Said water to be used for irrigation, domestic and other useful purposes upon the lands described as follows, to-wit:

Parts of Sections	Section	Township Range	
		North	East
SW $\frac{1}{4}$ of.....	23	45	65
W $\frac{1}{2}$ of NW $\frac{1}{4}$	26	"	"
SW $\frac{1}{4}$ of.....	26	"	"
NE $\frac{1}{4}$ of.....	35	"	"
NW $\frac{1}{4}$ of	"	"	"
NE $\frac{1}{4}$ of SW $\frac{1}{4}$	"	"	"
W $\frac{1}{2}$ of SW $\frac{1}{4}$	"	"	"
NE $\frac{1}{4}$ of SE $\frac{1}{4}$	34	"	"
NE $\frac{1}{4}$ of NE $\frac{1}{4}$	3	44	"

Said waters are to be conducted through two ditches which we intend to construct and maintain, to be known and called respectively the Trout Creek Meadows Central Ditch No. 1, and the Trout Creek Meadows Upper Ditch No. 2. Said Central Ditch No. 1 to carry 8 cubic feet per second, and the Upper Ditch No. 2 to carry 3 cubic feet per second.

Said ditches are described as follows, to-wit:

Trout Creek Meadows Central Ditch No. 1, the upper, or Eastern terminus to be at a point from whence the corner to sections 25-26, 35 and 36, T.

45 N. R. 65 E. bears 6 chains West and 10 50-100 chains north. Thence it will be constructed in a southwesterly direction to a point 31 chains south and 32 chains west of said section corner, where it will cross and divert the waters of the Middle Fork of Trout Creek. Thence it will be constructed westerly about 25 chains and then northerly about two miles, the lower, or western terminus to be at a point in the NW $\frac{1}{4}$ of SW $\frac{1}{4}$ of section 23, T. 45 N. R. 65 E.

The upper or southern terminus of Trout Creek Meadows Upper Ditch No. 2 will be at a point on the south Fork of Trout Creek from whence the corner to sections 2-3, 34 and 35, Tps. 44 and 45 N. R. 65 E. bears N. 24° E. 16 chains distant. Thence the ditch will be constructed in a northerly course about 60 chains, the upper or northern terminus to be in the NE $\frac{1}{4}$ of the SE $\frac{1}{4}$ of section 34, T. 45 N. R. 65 E. all of which fully appears in the plat of said ditch and land to be irrigated herewith annexed, which is made a part hereof.

In witness whereof these presents are subscribed by the President and Secretary of said Company and the Corporate Seal attached, on the day and year first above written.

JOHN SPARKS, President.

ANDREW J. HARRELL, Secretary.

(Corporate Seal.)

(Map attached showing locations of ditches and lands to be irrigated therefrom.)

State of Nevada,
County of Elko,—ss.

On the 4th day of October, A. D. 1893, personally appeared before me Edward C. McClellan, a Notary Public in and for said county, JOHN SPARKS and ANDREW J. HARRELL, personally known to me to be the persons described in, and whose names are subscribed to, and who executed the foregoing instrument, and who each personally acknowledged to me that as President and Secretary of THE SPARKS-HARRELL COMPANY he executed the same freely and voluntarily and for the uses and purposes therein mentioned.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal, the day and year last above written.

EDWARD C. McCLELLAN,
(Notarial Seal.) Notary Public.

Endorsed: “State of Nevada, County of Elko. Filed for record at request of A. J. Harrell on the 14 day of Dec. 1893, at 9 o’clock A. M. and recorded in Book 2 of Water Rights, page 218 to 220, inclusive, records of said county.

GEO. H. MEIGS, County Recorder,
By.....Deputy.”

DEFENDANT’S EXHIBIT NO. 9.

“WATER AND DITCH LOCATION NOTICE.

“NOTICE is hereby given that the undersigned, THE SPARKS-HARRELL COMPANY, a corporation organized and existing under and by virtue of

the laws of State of California, and having its principal office and place of business in the town of Visalia, County of Tulare, State of California, has this 12th day of October, 1893, appropriated 20 cubic feet per second of the waters of Shoshone Creek, flowing through T. 47 N. Rgs. 64 and 65 E. M. D. M., the same being situated in, or flowing through Elko County, State of Nevada. Said water to be used for irrigation, domestic and other useful purposes upon lands described as follows, to-wit:

Parts of Sections	Section	Township Range	
		North	East
N $\frac{1}{2}$ of SE $\frac{1}{4}$	18	47	65
S $\frac{1}{2}$ of NW $\frac{1}{4}$	"	"	"
N $\frac{1}{2}$ of SW $\frac{1}{4}$	"	"	"
SW $\frac{1}{4}$ of SW $\frac{1}{4}$	"	"	"
S $\frac{1}{2}$ of NE $\frac{1}{4}$	13	"	64
SE $\frac{1}{4}$ of.....	"	"	"
E $\frac{1}{2}$ of SW $\frac{1}{4}$	"	"	"
W $\frac{1}{2}$ of NW $\frac{1}{4}$	14	"	"
N $\frac{1}{2}$ of NE $\frac{1}{4}$	"	"	"
SW $\frac{1}{4}$ of NE $\frac{1}{4}$	"	"	"

Said waters are to be conducted through two ditches which we intend to construct and maintain, to be known and called respectively the Shoshone Creek North Side Ditch and the Shoshone Creek South Side ditch, each ditch to carry 10 cubic feet per second of water.

Said ditches are described as follows, to-wit:

The eastern, or upper, terminus of the North Side ditch is at a point from whence the quarter section

corner between sections 17 and 18, T. 47 N. R. 65 E. bears 24 chains north and 32 chains west. Thence the ditch will be constructed in a westerly direction two and one-half miles, and its lower or western terminus will be in the NE $\frac{1}{4}$ of SW $\frac{1}{4}$ of section 13, T. 47 N. R. 64 E.

The eastern, or upper, terminus of the South Side ditch is at a point from whence the same quarter section corner bears 2 chains east and 19 chains north. Thence the ditch will be constructed in a south-westerly direction two miles, and the lower, or western, terminus will be in the E $\frac{1}{2}$ of NW $\frac{1}{4}$ of Section 14, T. 47 N. R. 64 E, all of which fully appears in the plat of said ditches and land to be irrigated herewith annexed, which is made a part hereof.

In witness whereof, these presents are subscribed by the President and Secretary of said Company and the Corporate Seal attached, on the day and year first above written.

JOHN SPARKS, President.

ANDREW J. HARRELL, Secretary.

(Corporate Seal.)

(Map attached showing locations of ditches and lands to be irrigated therefrom.)

State of Nevada,
County of Elko,—ss.

On the 1st day of November, A. D. 1893, personally appeared before me, Edward C. McClellan, a Notary Public in and for said county, JOHN SPARKS and ANDREW J. HARRELL, personally known to me to be the persons described in, and

whose names are subscribed to, and who executed the foregoing instrument, and who each personally acknowledged to me that as President and Secretary of THE SPARKS-HARRELL COMPANY he executed the same freely and voluntarily and for the uses and purposes therein mentioned.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal, the day and year last above written.

EDWARD C. McCLELLAN,
(Notarial Seal.) Notary Public.

Endorsed: "State of Nevada, County of Elko. Filed for record at request of A. J. Harrell on the 14 day of Dec. 1893, at 9 o'clock, A. M. and recorded in book 2 of Water Rights, page 224 to 225, inclusive, records of said county.

GEO. H. MEIGS, County Recorder,
By.....Deputy."

The foregoing is all of the evidence introduced and proceedings had, except certain original exhibits that cannot be conveniently made a part of the printed transcript and are to be transmitted separate from the transcript to the Appellate Court.

Lodged September 20, 1916. W. D. McReynolds, Clerk, by Pearl E. Zanger, Deputy.

United States of America,
District of Idaho,—ss.

ORDER SETTLING STATEMENT.

It appearing that the within and foregoing state-

ment of evidence, as amended, was lodged in due time with the Clerk of this Court, and that notice of such lodgment and of the time of the proposed settlement thereof was given to the solicitors for plaintiffs, and it appearing that the said statement is true, complete and properly prepared.

It is therefore ordered, that the same be settled and allowed as a true, complete and correct statement of the evidence introduced in said cause, reduced to narrative form.

Dated this 7th day of October, 1916.

FRANK S. DIETRICH,
District Judge.

Filed Oct. 7, 1916.

W. D. McReynolds, Clerk.

(Title of Court and Cause.)

DECISION.

DIETRICH, DISTRICT JUDGE:

Subject to such prior rights as are possessed by the defendant, it is clear that the plaintiffs are entitled to the use of all the waters of Salmon River and its tributaries. At great cost, they have fully completed an irrigation system capable of utilizing the entire flow of the stream, and have need for it all. For the purpose of conserving the discharge during the non-irrigation seasons, they have provided a reservoir having an efficient capacity of approximately 180,000 acre feet. In compliance with the laws of the State of Idaho, they applied for and secured permits, No. 2659 for 1500 second feet, dated December 29,

1906; No. 3267 for 500 second feet, dated August 22, 1907; and No. 5509 for 1000 second feet, dated September 7, 1909. It is to be inferred that the total flow of the river, even in flood season, never reaches the amount of the first permit, and generally is but a small proportion thereof.

That the defendant has prior rights is conceded, and the real inquiry therefore is, of what do they consist. To this issue nearly all of the evidence has been directed. The defendant is, and since about 1885 it and its predecessors in interest have been the owners of large tracts of land partly in Idaho, but for the most part in Nevada, the extent and description of which are admitted. These lands were so selected as to control the water sources and natural meadows of an extensive mountainous stock range, and thus to control the range; upon this range the earlier proprietors maintained great herds of cattle. Some of the lands lie along the Salmon River, which might more properly be called "Salmon Creek", for in size it hardly rises to the dignity of a river. Its sources are in Nevada, and it flows in a northeasterly direction, emptying into the Snake River in Idaho. The plaintiffs' reservoir and point of diversion are upon the lower course of the river, in Idaho. It is a typical mountain stream, running through a narrow valley, which sometimes opens out into a considerable body of comparatively level land, and again contracts until it is a mere water channel. The altitude of the defendant's lands is approximately 5200 feet, and the growing season is so short and the like-

lihood of killing frosts in every month of the year is so great that agricultural operations must be confined largely to the raising of hay, and possibly grains of early maturity. It can hardly be said that any of the lands were ever occupied for residence purposes, but two or three "cow camps" were established for the use of range riders, and for holding some of the stock temporarily in the fall. Portions of the land were fenced, and were used for pasture, and for the cutting of wild hay for the horses used by the range riders. The amount of grain and tame hay produced prior to the inception of the plaintiffs' rights is almost negligible. Some ditches of considerable size and length were constructed, but much of the irrigation was carried on by putting temporary dams in the channel of the stream and adjacent sloughs, and then cutting openings in the banks, thus throwing the water out over the comparatively level portions of the land and letting it run continuously from the opening of the irrigation season up to the first part of July, when it was taken off so that the ground would dry out sufficiently for the cutting of hay. Thus one man attended to the irrigation of several thousand acres, no attempt being made to apply the water periodically or to change the application of the stream from one place to another. The ground was kept continuously drenched, and as a result only certain species of wild grasses grew which were adapted by nature to conditions of extreme moisture. No measuring devices were ever installed, so that we have substantially no data touching the amount

of water thus used prior to 1911, when certain observations were made by employees of the plaintiffs. Again in 1914 very comprehensive and detailed observations were made by the United States Geological Survey during the entire season from May 15th to September 15th. The points at which the defendant diverts and uses the water are many miles up the stream from the plaintiffs' reservoir, and there intervenes a long stretch of narrow canyon. All the lands irrigated by the defendant prior to the commencement of the construction of plaintiffs' system lie close to the river channel, and the water table being near the surface the return flow by percolation and surface drainage to the river channel is naturally very great, so that the defendant's primitive and apparently extravagant method of using water is not so prejudicial to the plaintiffs' rights as it might otherwise be. While the evaporation incident to such a use may be somewhat excessive, still, at that altitude, and for the short irrigation season during which water is applied, I am inclined to think the amount thus lost is inconsiderable.

I have thus far referred only to the lands which were under the ditches in existence at the time the plaintiff undertook its project; we now come to one of the principal, if not the chief, controversies involved in the suit, namely, the status of what is called the "High Line" or new "Harrell" canal. Briefly, the history of this canal is that as early apparently as 1892 a short ditch was constructed diverting water from the river into Roland slough, in Section 9, of

Township 45 North, Range 64 East. Nothing more appears to have been done until 1897, when a recognition line was run for several miles, and a definite location made for a distance of about a mile, commencing at a selected point of diversion on the Roland slough, in Sec. 34, some distance below the short ditch above referred to, and running in a northeasterly direction. This section of the canal was built, and from time to time additional sections were definitely located and constructed, with the result that in 1902 or 1903 there was a completed canal from the point of diversion, extending for a distance of about four miles to a point near the center of Section 13, Township 46 North, Range 64 East. From this time on until 1908 nothing at all was done, and the record discloses no act or word on the part of the proprietors signifying any intention further to extend the canal. In the meantime the plaintiff had secured two of its permits to utilize all the waters of the stream, had entered into an agreement with the State of Idaho for the construction of its extensive and costly irrigation system, under what is popularly known as the Carey Act, and, in compliance with its contract and the law, was selling a large number of contracts for water rights to future settlers. In 1908, after the plaintiffs' project was under full headway, the defendant put surveyors in the field, and thereafter from time to time prosecuted the work and extended the canal for approximately five miles, thus making it for the first time available for the irrigation of about four thousand acres of new land, lying above the level of the wild hay lands hereinbefore referred

to and some distance back from the river channel. The capacity of the canal is about ninety second feet, which is probably more than sufficient to carry all the water in the stream except at flood seasons.

The Courts should, and generally do, deal tenderly with the rights of the pioneer settler, who, with no resources other than his bare hands and a stout heart, ventures under the harsh conditions of frontier life to reclaim a piece of arid land and make for himself a home. Due diligence is always a question of circumstances, and, considering his poverty and the burdens he bears, great liberality is properly shown him in the matter of the time of completing his irrigation works and in the full application of the water to beneficial purposes. But by what course of reasoning can this principle be so extended as to make the defendant's right to the use of water by means of this newly constructed ditch, upon lands which had never theretofore been susceptible to irrigation, relate back fifteen or twenty years, and thus cut off the right of the plaintiffs? It is to be inferred that the successive proprietors of the lands have been men of considerable, if not great, wealth. The entire length of the constructed canal is but eight or nine miles, and no unusual difficulties were encountered in its construction; so far as appears, it was excavated in the earth, no rock work being necessary. It is manifest that such a ditch could very easily have been fully constructed in the course of two or three years, and surely to one who was financially able and encountered no unusual obstacles, five years for construction would be a most liberal allowance. If, as apparently

counsel for the defendant desire us to do, we consider the construction of the short channel connecting the river with Roland Slough as the commencement of the project, approximately twenty years elapsed from the time of its commencement to the date of its completion, and still an additional length of time is asked for the application of the water to beneficial uses. If we take 1897 as the date of commencement, substantially fifteen years were consumed in the construction of approximately eight miles of ditch. If under the circumstances such inactivity may be approved, it might well be asked what would constitute laches. But even more conclusive is the circumstance that for five or six years, from 1902 or 1903 until 1908, there was an absolute cessation of work, and no intimation was given of an intention to prosecute it further. No excuse is offered for the abandonment of construction during this long period, and upon the other hand it occurred at the very time when generally irrigated lands were very much in demand, and there was an unusual degree of interest in irrigation projects all through this section of the country. It was entirely reasonable for the plaintiffs to assume, when in 1906 they made investigation and applied for a permit, and when again in 1907 they applied for a second permit, that the defendant entertained no intention of extending the ditch or bringing new lands under irrigation. It is true that the ditch as it existed in 1906 had a capacity in excess of the requirements of the lands which could be served by it, but while in that fact there may be a possible sug-

gestion of an original intention on the part of the projectors to extend it to other lands, no such inference could be drawn touching the intention of new owners in 1906. Projects are frequently abandoned, and it was a very natural inference to draw from the fact that no work had been done for three or four years that if the projectors ever had entertained such purpose it had been given up. Besides, the method of applying water upon these lands was such that ditches or openings for the flow of water were not uncommonly very greatly in excess of what would ordinarily be deemed a necessary capacity, so that no really strong inference could be drawn from the excessive size of this particular ditch as to the intention of the owners touching its extension.

By an application of the same principle of diligence, the prior right of the defendant, insofar as concerns the lands which could be watered by ditches in 1907, must be limited to the area actually brought under irrigation prior to that time. Reasonable diligence must be exercised in applying water to beneficial purposes, as well as in carrying it to the point of intended use; the appropriation is fully consummated only by such application. Some of the ditches were constructed as early as 1885, most of them as early as 1889. Considering the financial ability of the proprietors, and the absence of any unusual difficulties in applying the water, it should I think be held that the extent of the use to which the water was applied in the course of from fifteen to twenty years after it was diverted, must be taken as the measure of the defendant's right.

Assuming then that defendant's rights are to be determined as of the irrigation season of 1906, we advance to consider the area of land then under irrigation and the quantity of water reasonably necessary therefor. The suggestion that the right is to be measured by the maximum capacity of the ditches is rejected. A water right is limited both by the capacity of the appropriator's conduits and the extent of his reasonable need; the right cannot be in excess of either the diversion or the beneficial use. The evidence touching the acreage under irrigation is widely conflicting; and perhaps that is to be expected where an appropriation is claimed for lands which were never cleared of the sagebrush or willows, and was never cultivated or cut over, but was used only for light pasturage. While it may be admitted that within reasonable bounds the application of water for the growth of wild grass for pasture alone may be held to be a beneficial use sufficient to support an appropriation, claims such as are here made should be subjected to the closest scrutiny. I am not inclined to regard the desultory flooding of sagebrush land with the high water of a stream, in the crude method here employed, for the mere purpose of adding slightly to the growth of sparse natural vegetation, as furnishing a sufficient basis for the award of a water right adequate for all purposes. It is rudimentary, of course, that water may be appropriated for any beneficial use; but beneficial use is a phrase of relative meaning. Many uses can be conceived of, which, in an attenuated sense, are beneficial, but which

would not support an appropriation; as a basis of a right the use must be of substantial benefit. It would require a high degree of courage, for instance, to affirm that the citizen can, to the exclusion of those who would use it for the raising of grains and fruits and other ordinary agricultural products, acquire the right to divert and spread out over thousands of acres of sagebrush land, upon which no homes are built, water at the rate of an inch per acre for the purpose of increasing the growth of wild grass from one-twentieth of a ton to one-tenth of a ton per acre. The use would in a literal sense be beneficial, but the benefit would be insignificant.

Any detailed discussion of the question of the acreage for which water should be awarded would exceed the reasonable length of an opinion, and I do not attempt it. Upon consideration I have concluded that, subject to the limitations hereinafter expressed, a prior right should be recognized in the defendant for 3,000 acres of hay and grain land, and 2,500 acres of pasture.

It remains to consider the quantity of water reasonably necessary for this purpose. In the nature of the case the question is not free from difficulty; and the evidence leaves much to be desired. Valuable information has been scientifically gathered in the last few years touching the duty of water upon cultivated lands and in the raising of tame grasses, but little attention has been given to the subject insofar as it pertains to wild meadow and pasture lands. We do the best we can with the material we have. The year

1914 appears to have been a fairly representative season in every way, and the defendant had unlimited freedom in the use of water. During the entire season from May 15th to September 15th it diverted a total of 17,206 acre feet. I cannot believe that there is any serious need for water at such an elevation prior to the first of May, and if we assume that the diversion during the first half of May equalled that of the latter half, 1604 acre feet should be added, making a total of 18,810 acre feet for the entire season from May 1st to September 15th. Assuming that the quantity which was diverted under the High Line canal prior to May 15th was the same as that for the last half of the month, of the total diversion for the season an amount equal to 7493 acre feet was diverted through the High Line canal, and the residue, namely, 11,317 acre feet, represents the aggregate of all other diversions. If we further assume that the water was applied only to lands that were irrigated in 1906, and if we further allow 1183 feet for use upon the land which was served by the High Line canal in that year, we would have a total use in 1914, to satisfy rights which may be said to be prior to those of the plaintiffs, of 12,500 acre feet. The net loss to the stream from this use, after giving credit for the return flow, was probably between 3500 and 4000 feet.

I am not unmindful of the possibility that with this water some lands were irrigated which were not under irrigation in 1906, or of the other possibility that some lands irrigated in 1906 were neglected in

1914. Let us, therefore, approach the question from a different angle. If we assume, as I am inclined to do, that three acre feet would be a reasonable seasonal allowance to be made for hay and grain land, and one and one-half acre feet for pasture, the quantity required would be 9000 acre feet for the hay and grain land and 3750 feet for pasture, or a total of 12,750 feet.

Again, suppose we take the popular view, which was once almost universal in this country, and which is still widely prevalent, that it requires an inch to the acre, or a second foot to fifty acres, flowing continuously during the actual irrigation season, for the proper irrigation of average lands and crops. Here the season of irrigation need for wild hay and for pasture, as disclosed by the defendant's actual practice for over fifteen years, is about sixty days. One hundred and ten second feet, that is, water at the rate of an inch to the acre for 5500 acres, flowing continuously for sixty days, would be the equivalent of approximately 13,000 acre feet. Perhaps I should add in this connection that I do not look with favor upon the suggestion that after the grasses have matured the defendant can hold the water on the lands indefinitely to keep them green, awaiting the owner's convenience for harvesting the crop. I cannot regard this as a beneficial use within contemplation of the law.

My conclusion is that the defendant is entitled to a prior right of 12,500 acre feet, the amount to be diverted during the irrigation season at such times and in such quantities as its needs may require, and

to be utilized upon the lands which were irrigated prior to the season of 1907. No substantial reason occurs to me for distributing the right to different dates of appropriation, and unless some consideration is called to my attention which I have overlooked, I am inclined to direct that the decree recite only that the entire amount so awarded was appropriated at different times, all prior to the inception of the plaintiffs' rights, in 1906. The defendant will be awarded an additional right of 12,000 acre feet, through the High Line canal, the right to date from May 1, 1911.

The plaintiff will be awarded rights in harmony with its permits, as of the dates and amounts thereof, up to an aggregate of 235,000 acre feet, to be measured at the point where the water is delivered into the canal system from the reservoir. Computation is made substantially upon the basis of two and three-fourths acre feet, for 73,000 acres of land, and an additional allowance of fifteen per cent for loss by evaporation and seepage in the main canal and laterals. If it be said that a witness for the plaintiffs estimated their need at one and one-half second feet per acre, the reply is that the real plaintiff, the Twin Falls Salmon River Land and Water Company, by its contract with the settlers, agreed to provide a supply at the rate of two and three-fourths acre feet, and this amount I deem to be reasonably necessary. The altitude is lower than at the defendant's lands, and not only is the irrigation season longer, but the precipitation is less. Possibly a little more water is required for the raising of wild hay than for

grain, but I am not convinced that more is required for one crop of wild hay than for three crops of alfalfa. I am unwilling to award three second feet for defendant's grain and hay lands, and only one and one-half acre feet generally for the lands upon plaintiffs' project. Such a course would be inconsistent. In weighing the plaintiffs' testimony upon the point the fact cannot be overlooked that it is deeply interested in securing an adjudication of the highest possible duty for water. Always in water suits, where there is insufficient water to satisfy the claims of all, manifestly the later claimants must, if they are to secure any water at all, keep down the amount of the earlier appropriations. But, of more importance here, the plaintiff is under the pressure of another consideration, the cogency of which is recognized and commented upon in the defendant's brief. It is not a user, but a vender, of water. In a short time presumably it will withdraw from all responsibility by turning its system over to the vendees, the settlers. It now has a suit pending with them in this Court, in which it practically concedes that its available water supply in ordinary years falls far below two and three-fourths acre feet for the 73,000 acres sold, and urges that it sold nothing but undivided shares in the system; and, of course, if that view be correct, it has no selfish interest in the amount of water to be awarded. As an alternative view, it urges that it sold only so much water per acre as may be found to be reasonably necessary for the irrigation of the land, and upon that assumption

it seeks a judicial finding that much less than two and three-fourths acre feet is sufficient. Under the circumstances I am not inclined to accept as conclusive the meager direct testimony which it has offered, but base my finding upon all the evidence in the case, both direct and indirect, weighed in the light of the common knowledge which has come from many years residence in the irrigated section of the state, and a not inconsiderable experience in water litigation. It is hardly necessary to add that in awarding so large a right to the plaintiff there is no implication that there is sufficient water in the stream to supply it. Upon the other hand, it is probably true that in ordinary years the right is very greatly in excess of the available supply.

Possibly it should be suggested that if the defendant should desire to abandon use on its hay and meadow lands, and transfer its right to the High Line canal, I see no reason why the transfer should be enjoined, provided the new use does not enlarge the net loss to the stream at the plaintiff's intake. I shall be willing to consider further suggestions upon this point, if the defendant desires a provision in the decree to cover it. It would doubtless require an adjudication of the respective amounts of the return flow. Counsel for the plaintiffs are directed to prepare a draft of decree and submit the same to opposing counsel before offering it for signature.

Endorsed: Filed July 7, 1915.

A. L. Richardson, Clerk.

By Pearl E. Zanger, Deputy.

(Title of Court and Cause.)

DECREE.

This cause came on to be further heard at this term, the same having heretofore been submitted, and the Court's decision having heretofore been filed herein; and thereupon, upon consideration thereof, IT IS ORDERED, ADJUDGED AND DECREED, as follows, viz:

1. That the extent and relative dignity of the rights of the several parties hereto to use for irrigation purposes the waters of what is known as Salmon River or Salmon Creek, and its tributaries, which stream flows in a northerly direction from the State of Nevada into the State of Idaho, and some of the tributaries of which are in one State and some in the other, are defined as follows:

(A) *Twin Falls Salmon River Land and Water Company, a corporation, and Salmon River Canal Company, Limited, a corporation.*

Subject to the prior right of the defendant, Vineyard Land and Stock Company, a corporation, to use 12,500 acre feet, as hereinafter more fully appears, the plaintiffs, Twin Falls Salmon River Land and Water Company and Salmon River Canal Company, Limited, corporations, have the right to use the waters of said stream and its tributaries at the rate of 1500 cubic feet per second under Permit No. 2659 issued by the State Engineer of the State of Idaho, said right dating from December 29th, 1906, and further to use 500 cubic feet per second of the waters of said stream under Permit No. 3267 issued by the

State Engineer of the State of Idaho, such right dating from August 22nd, 1907; and further the right to use 1,000 cubic feet per second of the waters of said stream, under Permit No. 5519 issued by the State Engineer of the State of Idaho, said right to date from September 7th, 1909; the water to be diverted under each and all of said rights at the outlet of the plaintiffs' reservoir at or immediately above what is known as the Salmon River dam at the lower end of such reservoir; provided, however, that the maximum aggregate diversion by said plaintiffs for any one irrigating season shall not exceed 235,000 acre feet, the same to be measured at said point of diversion. Said water was appropriated for and is to be used in the irrigation of lands embraced in what is known as the Salmon River Carey Act Project, of which said lands the following is a general description, to-wit:

Township 10 South, Range 15 East, B. M.

S $\frac{1}{2}$ and NE $\frac{1}{4}$ of Sec. 31.

S $\frac{1}{2}$ and S $\frac{1}{2}$ of NW $\frac{1}{4}$ of Sec. 32.

All of Sec. 33.

All of Sec. 34.

All of Sec. 35.

All of Sec. 36.

Township 10 South, Range 16 East, B. M.

All of Sec. 31.

SE $\frac{1}{4}$ of SE $\frac{1}{4}$ of Sec. 32.

S $\frac{1}{2}$ of Sec. 33.

S $\frac{1}{2}$ of Sec. 34.

Township 11 South, Range 14 East, B. M.

S $\frac{1}{2}$ of SE $\frac{1}{4}$ of Sec. 9.

S $\frac{1}{2}$ of S $\frac{1}{2}$ of Sec. 10.

S $\frac{1}{2}$ of SW $\frac{1}{4}$, Sec. 11.

SE $\frac{1}{4}$, Sec. 11.

All of Sections 12, 13, 14, 15 and 16.

SE $\frac{1}{4}$ and part of NE $\frac{1}{4}$, Sec. 17.

S $\frac{1}{2}$ and part of N $\frac{1}{2}$, Sec. 19.

All of Sections 20, 21, 22, 23, 24, 25, 26, 27, 28
and 29.

E $\frac{1}{2}$ and NW $\frac{1}{4}$, Sec. 33.

All of Sections 34, 35 and 36.

Township 11 South, Range 15 East, B. M.

All of Sections 1, 2, 3, 4 and 5.

S $\frac{1}{2}$ and part of NE $\frac{1}{4}$, Sec. 6.

All of Sections 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17,
18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30,
31, 32, 33, 34, 35 and 36.

Township 11 South, Range 16 East, B. M.

SE $\frac{1}{4}$, Sec. 1.

SW $\frac{1}{4}$ of SW $\frac{1}{4}$, Sec. 1.

S $\frac{1}{2}$, Sec. 2.

SW $\frac{1}{4}$ of NW $\frac{1}{4}$, Sec. 2.

All of Sections 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14,
15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27,
28, 29, 30, 31, 32, 33, 34, 35 and 36.

Township 11 South, Range 17 East, B. M.

All of Sec. 7.

S $\frac{1}{2}$, Sec. 8.

S $\frac{1}{2}$ of N $\frac{1}{2}$, Sec. 8.

Lots 2, 3 and 4, Sec. 8.

S $\frac{1}{2}$, Sec. 9.

S $\frac{1}{2}$ of N $\frac{1}{2}$, Sec. 9.

W $\frac{1}{2}$, Sec. 14.

W $\frac{1}{2}$ of SE $\frac{1}{4}$, Sec. 14.

SE $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 14.

S $\frac{1}{2}$, Sec. 15.

S $\frac{1}{2}$ of N $\frac{1}{2}$, Sec. 15.

NW $\frac{1}{4}$ of NW $\frac{1}{4}$, Sec. 15.

All of Sections 16, 17, 18, 19, 20, 21, 22, 23, 24, 25,
26, 27, 28, 29, 30, 31, 32, 33, 34, 35 and 36.

Township 11 South, Range 18 East, B. M.

Lots 3 and 4, Sec. 19.

Lots 1, 2, 3 and 4, Sec. 30.

Township 12 South, Range 14 East, B. M.

All of Sections 1, 2 and 3.

E $\frac{1}{2}$, Sec. 4.

E $\frac{1}{2}$ and NW $\frac{1}{4}$, Sec. 10.

All of Sections 11, 12 and 13.

E $\frac{1}{2}$, Sec. 14.

NW $\frac{1}{4}$ and part of SW $\frac{1}{4}$, Sec. 14.

Part of NE $\frac{1}{4}$, Sec. 23.

E $\frac{1}{2}$ and NW $\frac{1}{4}$, Sec. 24.

Part of SW $\frac{1}{4}$, Sec. 24.

E $\frac{1}{2}$ and part of NW $\frac{1}{4}$, Sec. 25.

Township 12 South, Range 15 East, B. M.

All of Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,
14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26,
27, 28, 29 and 30.

E $\frac{1}{2}$ and part of NW $\frac{1}{4}$, Sec. 31.

All of Sections 32, 33, 34, 35 and 36.

Township 12 South, Range 16 East, B. M.

All of Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,

14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26,
27, 28, 29, 30, 31, 32, 33, 34, 35 and 36.

Township 12 South, Range 17 East, B. M.

All of Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11.

N $\frac{1}{2}$, Sec. 12.

N $\frac{1}{2}$ and SW $\frac{1}{4}$, Sec. 15.

N $\frac{1}{2}$ and NW $\frac{1}{4}$, Sec. 15.

All of Sections 16, 17, 18, 19 and 20.

N $\frac{1}{2}$ and SW $\frac{1}{4}$, Sec. 21.

N $\frac{1}{2}$ and SW $\frac{1}{4}$, Sec. 29.

All of Section 30.

N $\frac{1}{2}$ and SW $\frac{1}{4}$, Sec. 31.

Lots 1, 2 and 3, Sec. 31.

Township 12 South, Range 18 East, B. M.

Lots 2, 3, 4, 5, 6 and 7, Sec. 6.

S $\frac{1}{2}$ of NE $\frac{1}{4}$, Sec. 6.

NW $\frac{1}{4}$ of SE $\frac{1}{4}$, Sec. 6.

SE $\frac{1}{4}$ of NW $\frac{1}{4}$, Sec. 6.

E $\frac{1}{2}$ of SW $\frac{1}{4}$, Sec. 6.

Township 13 South, Range 15 East, B. M.

All of Sections 1, 2, 3, 4 and 5.

Part of E $\frac{1}{2}$, Sec. 6.

Part of E $\frac{1}{2}$, Sec. 7.

All of Sections 8, 9, 10, 11, 12, 13, 14, 15, 16
and 17.

E $\frac{1}{2}$ and part of W $\frac{1}{2}$, Sec. 18.

E $\frac{1}{2}$ and part of W $\frac{1}{2}$, Sec. 19.

All of Sections 20, 21, 22, 23, 24, 25, 26, 27, 28, 29
and 30.

E $\frac{1}{2}$ and part of W $\frac{1}{2}$, Sec. 31.

All of Sections 32, 33, 34, 35 and 36.

Township 13 South, Range 16 East, B. M.

NE $\frac{1}{4}$ and W $\frac{1}{2}$, Sec. 1.

All of Secs. 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11.

W $\frac{1}{2}$, Sec. 12.

N $\frac{1}{2}$, Sec. 14.

All of Sections 15, 16, 17, 18, 19, 20 and 21.

W $\frac{1}{2}$, Sec. 22.

All of Sections 27, 28, 29, 30, 31, 32 and 33.

SE $\frac{1}{4}$ and W $\frac{1}{2}$, Sec. 34.

SW $\frac{1}{4}$, Sec. 35.

Township 14 South, Range 15 East, B. M.

All of Sections 1, 2, 3, 4 and 5.

E $\frac{1}{2}$ and part of W $\frac{1}{2}$, Sec. 6.

E $\frac{1}{2}$, Sec. 7.

Part of NW $\frac{1}{4}$, Sec. 7.

All of Sections 8, 9, 10, 11, 12, 13, 14, 15, 16
and 17.

SE $\frac{1}{4}$, Sec. 18.

Part of NE $\frac{1}{4}$, Sec. 18.

NE $\frac{1}{4}$, Sec. 20.

All of Sections 21, 22 and 23.

N $\frac{1}{2}$ and SW $\frac{1}{4}$ of Sec. 24.

N $\frac{1}{2}$, Sec. 26.

N $\frac{1}{2}$, Sec. 27.

N $\frac{1}{2}$, Sec. 28.

Township 14 South, Range 16 East, B. M.

All of Sections 3, 4, 5, 6, 7, 8, 9 and 10.

NW $\frac{1}{4}$ of SW $\frac{1}{4}$, Sec. 11.

W $\frac{1}{2}$ of NW $\frac{1}{4}$, Sec. 11.

NE $\frac{1}{4}$ of NW $\frac{1}{4}$, Sec. 11.

NW $\frac{1}{4}$, Sec. 15.

NW¼ of NE¼, Sec. 15.

All of Sections 16, 17 and 18.

All of said lands and said point of diversion being in the State of Idaho.

(b) *Vineyard Land and Stock Co. (Prior Right)*.

IT IS FURTHER ADJUDGED AND DECREED That the defendant Vineyard Land and Stock Company, a corporation, as a right superior to each and all rights of the plaintiffs, is entitled annually to use 12,500 acre feet of the waters of said stream, said right representing and comprising all of the appropriations of the defendant and its predecessors in interest prior to the year 1907, said appropriations having been made at different dates, all prior to the initiation of any rights by the plaintiffs. And it appearing that said appropriations were all made for lands contiguous to or in the close vicinity of said stream or contiguous to or in close vicinity of tributaries of said stream from which the water used on said lands was diverted, which said lands are hereinafter described, and that the water embraced in said appropriations was always, up to the time of the initiation of the plaintiffs' said rights, used upon said lands, and that the net loss to the flow of the stream by the use upon said lands of said 12,500 acre feet does not ordinarily exceed 4,000 acre feet, and that the net loss of the diversion of said water to the higher and more distant lands to which defendant has sought to apply a large portion thereof since the initiation of the plaintiffs' rights would be very much in excess of 4,000 acre feet, IT IS FURTHER DE-

CREED that the defendant's said right, and the whole thereof, is restricted to the lands for which said appropriations were made, which lands it is impracticable to describe by meets and bounds, but the same are included within the following legal subdivisions, although constituting in many cases only a small part of the subdivision, to-wit:

IN THE STATE OF IDAHO.

Township 15 South, Range 17 East, B. M.

N $\frac{1}{2}$, NW $\frac{1}{4}$, Sec. 24.

N $\frac{1}{2}$, NE $\frac{1}{4}$, Sec. 23.

SE $\frac{1}{4}$, SW $\frac{1}{4}$, Sec. 23.

SW $\frac{1}{4}$, SW $\frac{1}{4}$, Sec. 26.

W $\frac{1}{2}$, NW $\frac{1}{4}$, Sec. 35.

E $\frac{1}{2}$ of E $\frac{1}{2}$, NE $\frac{1}{4}$, Sec. 34.

Township 16 South, Range 17 East, B. M.

SE $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 3.

E $\frac{1}{2}$ NE $\frac{1}{4}$, Sec. 10.

E $\frac{1}{2}$ SE $\frac{1}{4}$, Sec. 10.

W $\frac{1}{2}$ of SW $\frac{1}{4}$ NW $\frac{1}{4}$, Sec. 11.

W $\frac{1}{2}$ of NW $\frac{1}{4}$ SW $\frac{1}{4}$, Sec. 11.

E $\frac{1}{2}$ NE $\frac{1}{4}$, Sec. 15.

E $\frac{1}{2}$ SE $\frac{1}{4}$, Sec. 15.

E $\frac{1}{2}$ of W $\frac{1}{2}$ SE $\frac{1}{4}$, Sec. 15.

E $\frac{1}{2}$ NE $\frac{1}{4}$, Sec. 22.

E $\frac{1}{2}$ of W $\frac{1}{2}$ NE $\frac{1}{4}$, Sec. 22.

E $\frac{1}{2}$ SE $\frac{1}{4}$, Sec. 22.

N $\frac{1}{2}$ SE $\frac{1}{4}$, Sec. 12.

N $\frac{1}{2}$ of N $\frac{1}{2}$ SW $\frac{1}{4}$, Sec. 12.

N $\frac{1}{2}$ of NE $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 11.

NW $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 11.

S $\frac{1}{2}$ of SW $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 11.

NE $\frac{1}{4}$ of SE $\frac{1}{4}$ SW $\frac{1}{4}$, Sec. 11.

Township 16 South, Range 18 East, B. M.

NW $\frac{1}{4}$ NW $\frac{1}{4}$, Sec. 8.

SE $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 7.

S $\frac{1}{2}$ of SW $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 7.

NW $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 7.

N $\frac{1}{2}$ SW $\frac{1}{4}$, Sec. 7.

IN THE STATE OF NEVADA.

Township 47 North, Range 67 East, Mt. D. M.

S $\frac{1}{2}$ of NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 14.

S $\frac{1}{2}$ of SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 14.

N $\frac{1}{2}$ of NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 14.

S $\frac{1}{2}$ of SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 15.

N $\frac{1}{2}$ of NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 15.

S $\frac{1}{2}$ of NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 15.

SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 15.

S $\frac{1}{2}$ of SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 16.

Township 47 North, Range 65 East, Mt. D. M.

SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 11.

E $\frac{1}{2}$ of SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 10.

NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 15.

E $\frac{1}{2}$ of NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 15.

E $\frac{1}{2}$ of NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 15.

SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 15.

E $\frac{1}{2}$ of SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 15.

NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 22.

S $\frac{1}{2}$ of NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 21.

NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 21.

NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 21.

N $\frac{1}{2}$ of NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 21.

S $\frac{1}{2}$ of SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 16.

SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 17.

S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 17.

N $\frac{1}{2}$ of SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 18.

S $\frac{1}{2}$ of N $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 18.

N $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 18.

N $\frac{1}{2}$ of SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 18

S $\frac{1}{2}$ of S $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 18.

Township 47 North, Range 64 East, Mt. D. M.

NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 13.

S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 13.

SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 13.

NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 24.

NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 24.

W $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 23.

W $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 23.

E $\frac{1}{2}$ of SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 23.

W $\frac{1}{2}$ of E $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 26.

W $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 26.

E $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 26.

E $\frac{1}{2}$ of SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 26.

W $\frac{1}{2}$ of E $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 35.

W $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 35.

E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 35.

NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35.

E $\frac{1}{2}$ of SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35.

Township 46 North, Range 64 East, Mt. D. M.

W $\frac{1}{2}$ of SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 1.

W $\frac{1}{2}$ of W $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 1.

E $\frac{1}{2}$ Sec. 2.

E $\frac{1}{2}$ of E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 2.

W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 12.

E $\frac{1}{2}$ Sec. 11.

E $\frac{1}{2}$ of E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 11.

SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 11.

W $\frac{1}{2}$ of NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 13.

All of Sec. 14.

W $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 23.

W $\frac{1}{2}$ Sec. 23.

E $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 22.

W $\frac{1}{2}$ of NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 26.

NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 26.

W $\frac{1}{2}$ of SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 26.

E $\frac{1}{2}$ of NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 27.

S $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 27.

W $\frac{1}{2}$ of E $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 27.

W $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 27.

E $\frac{1}{2}$ of E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 27.

W $\frac{1}{2}$ of SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 27.

W $\frac{1}{2}$ of NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 34.

W $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 34.

NW $\frac{1}{4}$ Sec. 34.

N $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 34.

SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 34.

S $\frac{1}{2}$ of NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 33.

S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 33.

Township 45 North, Range 64 East, Mt. D. M.

W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 3.

W $\frac{1}{2}$ of E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 3.

E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 4.

E $\frac{1}{2}$ of SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 4.

SE $\frac{1}{4}$ Sec. 4.

W $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 9.

E $\frac{1}{2}$ of E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 9.

W $\frac{1}{2}$ of E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 16.

W $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 16.

E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 16.

SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 16.

W $\frac{1}{2}$ of NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 16.

W $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 16.

SW $\frac{1}{4}$ Sec. 16.

NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 21.

NW $\frac{1}{4}$ Sec. 21.

S $\frac{1}{2}$ of NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 20.

SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 20.

W $\frac{1}{2}$ of NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 20.

E $\frac{1}{2}$ of NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 20.

SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 20.

S $\frac{1}{2}$ of SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 20.

NW $\frac{1}{4}$ of NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 29.

E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 29.

E $\frac{1}{2}$ of SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 29.

W $\frac{1}{2}$ of NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 29.

NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 29.

NW $\frac{1}{4}$ of SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 29.

S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 30.

NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 31.

S $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 31.

NW $\frac{1}{4}$ of NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 31.

Township 44 North, Range 63 East, Mt. D. M.

NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 1.

W $\frac{1}{2}$ of SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 1.

SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 1.

NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 1.

NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 2.

S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 2.

SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 2.

NW $\frac{1}{4}$ Sec. 11.

N $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 11.

SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 11.

E $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 10.

SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 10.

S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 10.

S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 9.

S $\frac{1}{2}$ of NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 9.

E $\frac{1}{2}$ of SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 9.

N $\frac{1}{2}$ Sec. 15.

W $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 15.

E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 15.

E $\frac{1}{2}$ of W $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 15.

NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 16.

W $\frac{1}{2}$ of NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 22.

NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 22.

SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 34.

SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 33.

Township 43 North, Range 63 East, Mt. D. M.

W $\frac{1}{2}$ of W $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 3.

W $\frac{1}{2}$ Sec. 3.

NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 3.

S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 3.

W $\frac{1}{2}$ of W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 11.

W $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 11.

E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 10.

NW $\frac{1}{4}$ Sec. 14.

NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 14.

E $\frac{1}{2}$ of SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 14.

SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 14.

W $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 23.

SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 3.

S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 3.

N $\frac{1}{2}$ of SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 4.

W $\frac{1}{2}$ of NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 4.

NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 4.

E $\frac{1}{2}$ of SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 4.

Township 45 North, Range 63 East, Mt. D. M.

N $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 36.

Township 46 North, Range 65 East, Mt. D. M.

W $\frac{1}{2}$ of SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 23.

E $\frac{1}{2}$ of SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 23.

W $\frac{1}{2}$ of E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 26.

E $\frac{1}{2}$ of W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 26.

E $\frac{1}{2}$ of W $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 26.

E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 26.

E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 35.

W $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 35.

W $\frac{1}{2}$ of NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35.

E $\frac{1}{2}$ of NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35.

W $\frac{1}{2}$ of SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35.

That the water which the defendant is entitled to divert under its said appropriations to the aggregate amount of 12,500 acre feet for use upon such portion of the lands above described as was reclaimed thereby prior to the year 1907, shall be diverted from the channel of Salmon River or Salmon Creek and its tributaries through ditches, canals, or other conduits,

provided with suitable measuring devices for measuring the amount of water diverted from the channel of such streams.

(c) *Vineyard Land and Stock Company.*

(Subsequent Right.)

And, subject to the aforesaid rights of the plaintiffs, said defendant is entitled annually to divert and use 12,000 acre feet of the water of said Salmon River or Salmon Creek, said right to date from May 1st, 1911, the same being subsequent and subordinate to the several rights of the plaintiffs. The water embraced in this right is to be diverted from the stream by means of what is known as the High Line or Harrell Canal, extending from a point in the E½ of the NW¼ of Section 34, Township 46 North, Range 64 East, to a point in the NE¼ of Section 30, Township 47 North, Range 65 East, in the State of Nevada, and to be used upon the following described lands situated in said State of Nevada, to-wit:

Township 47 North, Range 64 East, Mt. D. M.

E½ NE¼ Sec. 23.

SE¼ SE¼ Sec. 23.

E½ NE¼, SW¼ NE¼, SE¼, S½ NW¼ Sec. 24.

NW¼ NW¼, E½ SW¼, SW¼ SW¼ Sec. 24.

E½ NE¼, NW¼ NE¼, N½ NW¼, SW¼ NW¼,

SW¼ SE¼, S½ SW¼, NW¼ SW¼ Sec. 25.

W½, S½ NE¼, NW¼ NE¼, SE¼ Sec. 36.

Township 47 North, Range 65 East, Mt. D. M.

SW¼ Sec. 19.

SW¼ SE¼ Sec. 19.

SW¼ NW¼ Sec. 19.

SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 29.

N $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 29.

W $\frac{1}{2}$ Sec. 31.

NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 31.

W $\frac{1}{2}$ W $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 31.

All of Sec. 30.

Township 46 North, Range 64 East, Mt. D. M.

E $\frac{1}{2}$, E $\frac{1}{2}$ W $\frac{1}{2}$, E $\frac{1}{2}$ W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 1.

W $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 1.

E $\frac{1}{2}$ and E $\frac{1}{2}$ of W $\frac{1}{2}$ Sec. 12.

NE $\frac{1}{4}$ Sec. 13.

E $\frac{1}{2}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 13.

E $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 13.

SW $\frac{1}{4}$ Sec. 13.

W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 24.

N $\frac{1}{2}$ SE $\frac{1}{4}$ and SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 23.

E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 23.

Township 46 North, Range 65 East, Mt. D. M.

W $\frac{1}{2}$ SW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 6.

N $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 6.

NE $\frac{1}{4}$ Sec. 6.

W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 7.

W $\frac{1}{2}$ W $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 7.

2. Each of the parties hereto is perpetually enjoined from using or diverting from the channel of the stream any of the waters of said Salmon River or Salmon Creek, or its tributaries, in excess of its several rights as the same are hereinbefore defined, and from diverting or using the water at such time or in such manner or in such amount as will infringe upon any right of the other party, as such right is hereinbefore defined.

3. IT IS FURTHER ORDERED AND DECREED that the plaintiffs install a suitable and efficient automatic measuring and registering device at their point of diversion, and that the defendant install uniform measuring devices at the several points where it diverts water from the channel of said Salmon River or Salmon Creek and of any of its tributaries; all such devices to be of such design as to automatically register the amount of water diverted. All such measuring devices and gauges shall at all times be subject to the inspection of either party, and no dam or other obstruction to the natural flow of the stream shall be maintained so as to divert water from the channel of the stream, except through ditches, canals or other works provided with such measuring devices, and each of the parties hereto is perpetually enjoined from diverting from the channel of the stream or its tributaries, any water through any ditch, conduit, or other device not provided with such measuring device.

4. IT IS FURTHER ORDERED AND DECREED That the Court retain jurisdiction to make all reasonable rules touching the manner of diverting, measuring and distributing the water, and the devices to be installed and used for such purposes where it may be impracticable to fully comply with the terms of the decree, and to direct that the parties keep accurate and detailed records of the amounts of water diverted, and to require reports to be filed from time to time of the amount so diverted, and generally to make such orders as may be found rea-

sonably necessary to give effect to the decree, and to appoint commissioners or water masters to make distribution in accordance with its terms, and to punish the parties hereto, their officers, agents and employes, and their grantees and successors in interest, for any violation of the provisions thereof.

Done in open Court this 23rd day of March, 1916.

(Signed) FRANK S. DIETRICH,
District Judge.

Endorsed: Filed March 24, 1916.

W. D. McReynolds, Clerk.

(Title of Court and Cause.)

PETITION FOR APPEAL AND ORDER
ALLOWING SAME.

To the Honorable Frank S. Dietrich, District Judge:

The above named defendant, Vineyard Land and Stock Company, feeling aggrieved by the decree rendered and entered in the above entitled cause on the 24th day of March, 1916, does hereby appeal from said decree to the Circuit Court of Appeals for the Ninth Judicial Circuit, for the reasons set forth in the Assignment of Errors filed herewith, and it prays that its appeal be allowed and that citation be issued as provided by law, and that a transcript of the record proceedings and documents upon which said decree was based, duly authenticated, be sent to the United States Circuit Court of Appeals for the Ninth Judicial Circuit, under the rules of such Court in such cases made and provided.

And your petitioner further prays that the proper order relating to the required security to be required of it be made.

Dated this 20th day of Sept., 1916.

ANDREW HOWAT,

J. A. MARSHALL,

HERBERT R. MacMILLAN,

FRANK K. NEBEKER,

Residence: Salt Lake City, Utah.

C. B. HENDERSON,

Residence: Elko, Nevada.

EDWIN SNOW,

Residence: Boise City, Idaho.

C. A. BOYD,

Residence: Ogden, Utah.

Solicitors for Defendant.

Appeal allowed upon giving bond as required by law for the sum of Three Hundred dollars (\$300.00).

Dated Sept. 20th, 1916.

FRANK S. DIETRICH,

United States District Judge for the
District of Idaho.

Endorsed: Filed Sept. 20, 1916. W. D. McReynolds, Clerk.

(Title of Court and Cause.)

ASSIGNMENT OF ERRORS.

Now comes the defendant in the above entitled cause and files the following assignment of errors upon which it will rely upon its prosecution of the appeal in the above entitled cause, from the decree

made by this Honorable Court on the 24th day of March, A. D. 1916:

I.

The court erred in making and entering its decree herein awarding and decreeing to defendant as a prior right to the rights of the plaintiffs in and to the waters of Salmon River and its tributaries, only 12,500 acre feet of said waters, and in not finding and holding that defendant is entitled to the prior right to the use of 50,641.5 acre feet of the waters of said streams.

II.

The court erred in decreeing that the right of defendant to use 12,000 acre feet of the waters of said Salmon River and its tributaries for the irrigation of its lands by means of defendant's High Line, or Harrell, Canal, is subsequent and subordinate to plaintiffs' rights to use the waters of said streams. The lands of defendant referred to in this assignment are situate in Elko County, State of Nevada, and are particularly described as follows, to-wit:

Township 47 North, Range 64 East, M. D. M.

E $\frac{1}{2}$ of NE $\frac{1}{4}$, Section 23.

SE $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 23.

NE $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 23.

S $\frac{1}{2}$ of NE $\frac{1}{4}$, Section 24.

S $\frac{1}{2}$ of NW $\frac{1}{4}$, Section 24.

NW $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 24.

NE $\frac{1}{4}$ of SW $\frac{1}{4}$, Section 24.

S $\frac{1}{2}$ of SW $\frac{1}{4}$, Section 24.

SE $\frac{1}{4}$ of Section 24.

N $\frac{1}{2}$ of NE $\frac{1}{4}$, Section 25.

SE $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 25.

N $\frac{1}{2}$ of NW $\frac{1}{4}$, Section 25.

SW $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 25.

NW $\frac{1}{4}$ of SW $\frac{1}{4}$, Section 25.

S $\frac{1}{2}$ of SW $\frac{1}{4}$, Section 25.

SW $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 25.

NW $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 36.

S $\frac{1}{2}$ of NE $\frac{1}{4}$, Section 36.

NW $\frac{1}{4}$ of Section 36.

S $\frac{1}{2}$ of Section 36.

Township 47 North, Range 65 East, M. D. M.

SW $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 19.

SW $\frac{1}{4}$ of Section 19.

SW $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 19.

SW $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 29.

N $\frac{1}{2}$ of NW $\frac{1}{4}$ of SW $\frac{1}{4}$, Section 29.

All of Section 30.

NW $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 31.

W $\frac{1}{2}$ of Section 31.

W $\frac{1}{2}$ of W $\frac{1}{2}$ of SE $\frac{1}{4}$, Section 31.

Township 46 North, Range 65 East, M. D. M.

N $\frac{1}{2}$ of Section 6.

N $\frac{1}{2}$ of S $\frac{1}{2}$, Section 6.

SW $\frac{1}{4}$ of SW $\frac{1}{4}$, Section 6.

W $\frac{1}{2}$ of NW $\frac{1}{4}$, Section 7.

W $\frac{1}{2}$ of W $\frac{1}{2}$ of SW $\frac{1}{4}$, Section 7.

Township 46 North, Range 64 East, M. D. M.

E $\frac{1}{2}$ of Section 1.

N $\frac{1}{2}$ of NW $\frac{1}{4}$, Section 1.

SE $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 1.

E $\frac{1}{2}$ of SW $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 1.

E $\frac{1}{2}$ of Section 12.

E $\frac{1}{2}$ of W $\frac{1}{2}$, Section 12.

NE $\frac{1}{4}$ of Section 13.

NE $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 13.

E $\frac{1}{2}$ of NW $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 13.

S $\frac{1}{2}$ of NW $\frac{1}{4}$, Section 13.

N $\frac{1}{2}$ of SW $\frac{1}{4}$, Section 13.

S $\frac{1}{2}$ of SW $\frac{1}{4}$, Section 13.

W $\frac{1}{2}$ of NW $\frac{1}{4}$, Section 24.

E $\frac{1}{2}$ of NE $\frac{1}{4}$, Section 23.

N $\frac{1}{2}$ of SE $\frac{1}{4}$, Section 23.

SW $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 23.

III.

The court erred in decreeing absolutely to plaintiffs any of the waters of Salmon River and its tributaries in excess of the quantity, to-wit, about 45,000 acre feet, which has been used by plaintiffs for beneficial purposes, and in enjoining the defendant from using any of such excess waters prior to the actual application of the same to the beneficial uses for which said waters are claimed, and in making and entering any decree herein with respect to such excess, except to determine the amount thereof that can be diverted through plaintiffs' works and the priority of the same, and to set a time within which such amount of such excess shall, subject to the rights of the defendant, be applied by plaintiffs to the purposes for which the same is claimed.

IV.

The court erred in making and entering its decree

herein in quieting title in plaintiffs to any of the waters of Salmon River and its tributaries.

V.

The court erred in decreeing that the 12,500 acre feet of the waters of said Salmon River and its tributaries awarded to defendant as a prior right to the rights decreed to plaintiffs, can be used only upon such of the defendant's lands in the State of Nevada, and particularly described in the decree herein, as were reclaimed by defendant and its predecessors in interest prior to the year 1907.

VI.

The court erred in making and entering its decree herein enjoining the defendant from using any part of said 12,500 acre feet of the waters of said Salmon River and its tributaries so decreed to defendant as a prior right, upon the lands of defendant located under the High Line, or Harrell, Canal, and particularly described in Assignment numbered II.

VII.

The court erred in making and entering its decree herein enjoining the defendant from changing the points of diversion and places of use of the waters of said Salmon River and its tributaries, as authorized by law and particularly as authorized by the laws of the State of Nevada.

VIII.

The court erred in making and entering its decree herein enjoining the defendant from irrigating its

lands by means of dams placed in the natural channels of said Salmon River and its tributaries and in the sloughs and other channels leading therefrom, thereby flooding said lands without the use of artificial canals, ditches and conduits, and in enjoining the defendant from diverting any of the waters of said stream or its tributaries, except by means of ditches or other devices provided with automatic guages.

IX.

The court erred in making and entering its decree herein requiring the defendant to install in all of its ditches, canals and conduits, in the State of Nevada, automatic measuring devices for measuring all waters used by the defendant from said streams, in said state, and in decreeing that all such measuring devices and guages shall at all times be subject to the inspection of plaintiffs; and in decreeing that the plaintiffs should have the right to go upon the lands of the defendant in the State of Nevada for the purpose of inspecting the measuring devices installed by defendant in its said ditches, canals and conduits.

X.

The court erred in making and entering its decree herein awarding to and quieting title in plaintiffs to the right to use each season 235,000 acre feet of the waters of said Salmon River and its tributaries, and in awarding and decreeing to plaintiffs any quantity of said waters in excess of 45,000 acre feet, and in decreeing that any right of plaintiffs to the use of

said waters is prior to any right of the defendant thereto.

XI.

The court erred in making and entering its decree herein retaining jurisdiction in said cause for the purpose of making rules touching the manner of defendant's diversions, measurements, and distribution of the waters of said Salmon River and its tributaries in the State of Nevada; or for the purpose of directing defendant to keep records of the amounts of water of said streams diverted and used by it in the State of Nevada; or for the purpose of appointing water-masters or commissioners with authority to go upon the said premises of the defendant in the State of Nevada and to distribute to the defendant the waters of said streams to which it is entitled for the irrigation of its lands in said state; or for the purpose of making any order whatever touching the distribution, use, points of diversion or places of use of the waters of said streams by the defendant in connection with the irrigation of its lands in the State of Nevada.

XII.

The court erred in making and entering its decree herein in awarding to the plaintiffs any of the waters of the tributaries of Salmon River known as Jake's Creek, Dry Creek and Nall Creek, and in not finding and holding that defendant is entitled to the use of all of the waters of said streams.

XIII.

The court erred in decreeing that the defendant is not entitled to irrigate the following described lands belonging to defendant, in Elko County, State of Nevada, and in Twin Falls County, State of Idaho, and in refusing to award to defendant 7,438 acre feet of the waters of said Salmon River and its tributaries for the irrigation of said lands. Said lands have a total area of 1,653 acres, and are particularly described as follows, to-wit:

IN ELKO COUNTY, STATE OF NEVADA.

Under Bore's Nest Ditch (East Side) in Township Forty-Seven North, Range Sixty-Four East, M. D. M.

2 acres in $E\frac{1}{2}$ of $E\frac{1}{2}$ of $NE\frac{1}{4}$, Section 26.

20 acres in $E\frac{1}{2}$ of $E\frac{1}{2}$ of $SE\frac{1}{4}$, Section 26.

18 acres in $E\frac{1}{2}$ of $E\frac{1}{2}$ of $NE\frac{1}{4}$, Section 35.

8.80 acres in $E\frac{1}{2}$ of $E\frac{1}{2}$ of $SE\frac{1}{4}$, Section 35.

Under Grey Ditch (West Side), in Township Forty-Six North, Range Sixty-Four East, M. D. M.

3.60 acres in $NE\frac{1}{4}$ of $SW\frac{1}{4}$, Section 11.

Under Mitchell Slough, in Township Forty-Six North, Range Sixty-Four East, M. D. M.:

1.60 acres in $SW\frac{1}{4}$ of $NW\frac{1}{4}$, Section 13.

Under Harrell Ditch, south of San Jacinto Lane, in Township Forty-Six North, Range Sixty-Four East, M. D. M.:

5.60 acres in $NW\frac{1}{4}$ of $SW\frac{1}{4}$, Section 13.

46.00 acres in $S\frac{1}{2}$ of $SW\frac{1}{4}$, Section 13.

76.00 acres in $E\frac{1}{2}$ of $NE\frac{1}{4}$, Section 23.

40.00 acres in $SW\frac{1}{4}$ of $NE\frac{1}{4}$, Section 23.

74.00 acres in $W\frac{1}{2}$ of $SE\frac{1}{4}$, Section 23.

15.00 acres in $NE\frac{1}{4}$ of $SE\frac{1}{4}$, Section 23.

25.20 acres in $W\frac{1}{2}$ of $NW\frac{1}{4}$, Section 24.

10.00 acres in $NW\frac{1}{4}$ of $NE\frac{1}{4}$, Section 26.

15.00 acres in $E\frac{1}{2}$ of $NE\frac{1}{4}$ of $NW\frac{1}{4}$, Section 26.

2.00 acres in $SE\frac{1}{4}$ of $NW\frac{1}{4}$, Section 26.

15.50 acres in $E\frac{1}{2}$ of $SW\frac{1}{4}$ of $NW\frac{1}{4}$, Section 26.

Under Harrell Ditch and on Hellar Meadow, in Township Forty-Six North, Range Sixty-Four East, M. D. M.:

14.40 acres in $W\frac{1}{2}$ of $SW\frac{1}{4}$, Section 26.

20.00 acres in $E\frac{1}{2}$ of $NE\frac{1}{4}$ of $SE\frac{1}{4}$, Section 27.

6.00 acres in $E\frac{1}{2}$ of $SE\frac{1}{4}$ of $SE\frac{1}{4}$, Section 27.

6.00 acres in $SW\frac{1}{4}$ of $SW\frac{1}{4}$, Section 27.

Around Middle Stacks, in Township Forty-six North, Range Sixty-four East, M. D. M.:

8.00 acres in $E\frac{1}{2}$ of $SE\frac{1}{4}$ of $NE\frac{1}{4}$, Section 33.

8.40 acres in $N\frac{1}{2}$ of $NE\frac{1}{4}$ of $SE\frac{1}{4}$, Section 33.

6.00 acres in $NW\frac{1}{4}$ of $SE\frac{1}{4}$, Section 33.

1.20 acres in $SE\frac{1}{4}$ of $SW\frac{1}{4}$, Section 33.

Around Middle Stacks, in Township Forty-five North, Range Sixty-four East, M. D. M.:

2.40 acres in $E\frac{1}{2}$ of $E\frac{1}{2}$ of $NW\frac{1}{4}$, Section 3.

8.00 acres in $W\frac{1}{2}$ of $SW\frac{1}{4}$, Section 3.

1.00 acre in $W\frac{1}{2}$ of $SW\frac{1}{4}$ of $NE\frac{1}{4}$, Section 4.

17.20 acres in $E\frac{1}{2}$ of $SW\frac{1}{4}$, Section 9.

57.60 acres in $E\frac{1}{2}$ of $NW\frac{1}{4}$, Section 9.

34.00 acres in $W\frac{1}{2}$ of $E\frac{1}{2}$ of $SW\frac{1}{4}$, Section 9.

53.00 acres in $E\frac{1}{2}$ of $NE\frac{1}{4}$, Section 9.

13.60 acres in $E\frac{1}{2}$ of $SE\frac{1}{4}$, Section 9.

*At Roland Place, in Township Forty-five North,
Range Sixty-four East, M. D. M.:*

1.60 acres in NW $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 16.

11.20 acres in E $\frac{1}{2}$ of E $\frac{1}{2}$ of NE $\frac{1}{4}$, Section 16.

4.40 acres in SE $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 16.

*At Vineyard Ranch, in Township Forty-four North,
Range Sixty-three East, M. D. M.:*

48.80 acres in NW $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 11.

16.40 acres in SE $\frac{1}{4}$ of SW $\frac{1}{4}$, Section 11.

6.80 acres in SE $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 10.

4.00 acres in NW $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 10.

10.50 acres in NW $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 14.

10.00 acres in NW $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 16.

4.00 acres in SE $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 16.

*At Hubbard Ranch, in Township Forty-four North,
Range Sixty-three East, M. D. M.:*

20.00 acres in SE $\frac{1}{4}$ of SW $\frac{1}{4}$, Section 34.

2.50 acres in NE $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 4.

16.50 acres in SW $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 3.

8.00 acres in NE $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 3.

6.00 acres in SW $\frac{1}{4}$ of SW $\frac{1}{4}$, Section 2.

8.00 acres in W $\frac{1}{2}$ of SE $\frac{1}{4}$ of SW $\frac{1}{4}$, Section 11.

10.00 acres in E $\frac{1}{2}$ of SW $\frac{1}{4}$, Section 11.

14.50 acres in NE $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 10.

5.00 acres in NW $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 10.

2.00 acres in NW $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 14.

10.00 acres in E $\frac{1}{2}$ of NW $\frac{1}{4}$, Section 23.

2.50 acres in NE $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 23.

*At Bridge Ranch, in Township Forty-seven North,
Range Sixty-five East, M. D. M.:*

9.00 acres in N $\frac{1}{2}$ of SE $\frac{1}{4}$ of SW $\frac{1}{4}$, Section 18.

0.20 acres in SW $\frac{1}{4}$ of SW $\frac{1}{4}$, Section 18.

23.00 acres in SW $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 18.

14.00 acres in NW $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 18.

5.20 acres in NW $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 13.

8.00 acres in SE $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 13.

17.20 acres in SE $\frac{1}{4}$ of SW $\frac{1}{4}$, Section 18.

31.60 acres in N $\frac{1}{2}$ of NE $\frac{1}{4}$, Section 24.

29.60 acres in E $\frac{1}{2}$ of NW $\frac{1}{4}$, Section 24.

*At Nall Ranch, in Township Forty-three North,
Range Sixty-four East, M. D. M.:*

6.50 acres in SW $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 4.

72.00 acres in SE $\frac{1}{4}$ of Section 4.

36.00 acres in S $\frac{1}{2}$ of SW $\frac{1}{4}$, Section 4.

33.20 acres in W $\frac{1}{2}$ of SE $\frac{1}{4}$, Section 3.

*At Trout Creek Meadow, in Township Forty-five
North, Range Sixty-five East, M. D. M.:*

8.40 acres in S $\frac{1}{2}$ of SW $\frac{1}{4}$, Section 1.

29.50 acres in NW $\frac{1}{4}$ of Section 26.

48.00 acres in SW $\frac{1}{4}$ of Section 26.

62.00 acres in NW $\frac{1}{4}$ of Section 35.

19.70 acres in W $\frac{1}{2}$ of NE $\frac{1}{4}$, Section 35.

3.60 acres in SE $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 34.

7.60 acres in NE $\frac{1}{4}$ of SW $\frac{1}{4}$, Section 35.

16.10 acres in W $\frac{1}{2}$ of SW $\frac{1}{4}$, Section 35.

Township 44 North, Range 65 East, M. D. M.:

4.00 acres in E $\frac{1}{2}$ of NE $\frac{1}{4}$, Section 3.

*On Hot Creek, in Nevada, in Township Forty-seven
North, Range Sixty-seven East, M. D. M.:*

21.20 acres in S $\frac{1}{2}$ of NW $\frac{1}{4}$, Section 6.

26.80 acres in S $\frac{1}{2}$ of NE $\frac{1}{4}$, Section 6.

34.40 acres in S $\frac{1}{2}$ of NW $\frac{1}{4}$, Section 5.

19.20 acres in NE $\frac{1}{4}$ of SW $\frac{1}{4}$, Section 5.

26.80 acres in NW $\frac{1}{4}$ of SE $\frac{1}{4}$, Section 5.

52.60 acres in S $\frac{1}{2}$ of SE $\frac{1}{4}$, Section 5.

29.20 acres in NE $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 8.

59.00 acres in W $\frac{1}{2}$ of NW $\frac{1}{4}$, Section 9.

*On Hot Creek, in Idaho, in Township Sixteen South,
Range Seventeen East, B. M.:*

40.00 acres in Lots 2, 3 and 4, Section 25.

6.00 acres in Lot 1, Section 30.

XIV.

The court erred in making and entering its decree herein in refusing to award to the defendant the right to use all of the waters of the tributary of said Salmon River known as Trout Creek, after the flow of said tributary ceases each season to reach the natural channel of said Salmon River, and in enjoining the defendant from the use of any of the waters of said tributary upon lands formerly irrigated by the defendant from the waters thereof.

XV.

The court erred in refusing to permit defendant's witness, E. C. McClellan, to give his opinion as to the quantity of water per acre that would be consumed by evaporation and taken up by plant life as a result of the irrigation of defendant's lands by the flooding system, and in sustaining plaintiffs' objection to the question asked of the witness as to whether or not he knew the rate of evaporation of water at Winnemucca, Nevada, where the climatic conditions were similar to those on the Salmon River in

the section where defendant's lands are located. For a more complete statement of this assignment, the following proceedings at the trial are referred to:

MR. McCLELLAN:

I have made a study and become informed as to the quantity of water, or what you might say the duty of water is for irrigation of the character I have spoken of, that is the flooding of the lands, at these various ranches. The duty of water is very small, because there is a large quantity of water placed on the land and under those conditions the evaporation is very great. The growing plants there take up double or more as much water as if they were irrigated in a different way, and then there would be quite a large quantity of water either flow back into the streams on the surface or come back underneath. I have an opinion as to about the amount of water per acre that would be consumed either by evaporation or taken up by plant life in that form of irrigation. I have studied the matter of the duty of water for forty-five years in connection with the character of irrigation carried on in Nevada. I have observed it a very little in connection with the growing of alfalfa. My observations have been confined mainly to the method of irrigation used by the ranches in Nevada, in flooding the lands, putting the water onto it in the early spring and letting it run until haying time. I have had

experience in irrigating and supervising the irrigation of such lands. It has extended at different times since 1886, principally over the Sparks-Harrell range. I have observed from season to season the character of irrigation that was necessary to produce those crops, and have noted the effect of the flooding system upon the crops there and at other places as well. With the crops that are raised on that land, as the condition of the plants is there, they have got to be irrigated in that way to produce anything at all. The irrigation extends from on or before the first of April to between the first and tenth of July. My knowledge of evaporation is derived from reports of the United States Weather Service taken in the arid regions. There is a table that has been published of evaporations of a large number of different places in the arid regions by the United States Service in 1887 and 1888, I believe it was. Those tables can be secured from the Government, and they are also published. There is one place in Nevada, at Winnemucca, where the evaporation was observed, that I believe comes about as near the climatic conditions to Salmon River as any of the others, if not nearer.

MR. NEBEKER:

Q. Do you know what the evaporation is there?

A. That year, yes.

Q. At Winnemucca?

THE COURT:

Why is that important? I don't quite understand how evaporation enters into this question now, unless you are rebutting testimony brought out—

MR. NEBEKER:

No, I am not rebutting it. Our theory is this, that I don't know just what particular turn this case will take, but it may become necessary for us to show that we have established a right to the use of a large quantity of water which we would be entitled to, even although our system of irrigation in the past has not been the most economical, and now we propose to use a system of irrigation and bring a somewhat larger area of land under cultivation, which would result after all in less loss to anybody else lower down the stream than our former system of irrigation. That is the point.

THE COURT:

I don't quite understand yet how evaporation would have anything to do with it. You mean evaporation from the surface of the stream or evaporation from the soil saturated with water?

MR. NEBEKER:

Evaporation from the surface of the water that is used for irrigation under a past system, that is, a system by which the entire area was kept under water for some months of the year. That furnished a surface from which there was a very high evaporation. I say it may become

necessary for the Court to determine whether or not we should be permitted to use that same water, which would otherwise be lost under our old system of irrigation, apply it to a use where the evaporation would not be so great and by a method which would consume less water by evaporation.

MR. HAGA:

Does counsel claim that evaporation is a beneficial use?

MR. NEBEKER:

It is a necessary incident to irrigation to which we are entitled.

THE COURT:

That is true, that the loss by evaporation should always be considered in determining the amount of water which is required for the reasonable irrigation of any tract of land, that would be the evaporation of water in the distributing ditches and reservoirs, if there be a reservoir, and also the evaporation from the soil; but perhaps I can't anticipate what you are getting at here, the way the question is put. You ask for evaporation generally. Now, if this witness knows anything about the amount of evaporation there, it may or may not be material.

MR. NEBEKER:

I think it will appear to be material, in connection with the testimony that will be offered later on.

THE COURT:

Of course, in a case of this kind, the evidence takes such a wide range anyway that I don't care to open the door to immaterial testimony or incompetent testimony.

(Last question read.)

MR. HAGA: The question is objected to as irrelevant and immaterial, and as not a basis of determining the amount of water applied to a beneficial use.

THE COURT: This question is as to the evaporation at Winnemucca?

MR. NEBEKER: Where the conditions are the same.

THE COURT: The same as what?

MR. NEBEKER: The same as at Salmon River, where the irrigation takes place.

THE COURT: Perhaps I can get at this more quickly by asking the witness myself.

THE COURT:

Q. What do you mean by conditions at Winnemucca?

A. The general climatic conditions.

Q. Do you know anything about the conditions under which the experimentation was carried on?

A. Just as it is described in the pamphlet of the Government.

Q. Have you the pamphlet?

A. No, sir.

THE COURT: The objection will be sus-

tained to that particular question then, because it seems that all he knows about it is what he has read in this pamphlet, and he should have the pamphlet.

XVI.

The court erred in sustaining plaintiffs' objection to the question propounded to defendant's witness, E. C. McClellan, in which said witness was requested to state whether or not from his own knowledge of the particular character of irrigation that took place on the defendant's lands and of the kind of crops grown there, he would be able to state in miner's inches the quantity of water that would be required for the irrigation of those lands from the 1st of April until the 10th of July, each year, and if so, as to what that quantity would be. For a more complete statement of the proceedings upon which this assignment is based, the following proceedings, as shown by the Transcript, are referred to:

Q. Now, I will ask you, Mr. McClellan, to state whether or not from your knowledge of that particular kind of irrigation that took place in that valley and on these ranches, and of the kinds of crops that were grown there, if you are able to tell us in miners' inches the quantity of water that would be required upon those lands say from the 1st of April until the 10th of July?

MR. HAGA: That is objected to, if the Court please. Proper foundation has not been laid.

THE COURT: Sustained.

MR. McCLELLAN: I have had experience in the growing of crops of the kind that are grown on these ranches. In 1886 I had charge of and assisted in the irrigation of similar crops on the H. D. Ranch in Thousand Springs Valley. I did not make any measurements, but I observed the amount of water placed upon the lands and estimated as closely as I could. The water is customarily used continuously on the land from the 1st of April to the 10th of July, and as a rule is flooded during all of that time over the entire surface. I know the quantity of water per acre in miners' inches that would be required for that purpose.

Q. You may state what quantity is required?

MR. HAGA: I object to it.

THE COURT: You may interrogate him as to how he knows, if you desire.

CROSS-EXAMINATION: (By Mr. Haga.)

I made a rough measurement one time by taking the depth and width of water flowing through a head gate at the Bird's Nest ditch, estimated as closely as I could the velocity of the water at that point, so as to consider the amount of water flowing through that ditch. It was sometime during the month of May in 1897 I believe, but I am not positive. That is the only estimate I made of water flowing in the defendant's ditches on Salmon River by taking the actual size of the head-gate and the depth of the water flowing through it. A lot of the

water was diverted and used from the river by means of dams without ditches or head-gates. That might have been measured if a person would take the time and pains to do so, but I did not do that. I had no current meter for measuring the water at the time I made the estimate on the Bird's Nest Ditch. I made the estimate to see about the amount of water that was going out there, was all. I own a current meter and use it sometimes. I have used it on the Humboldt River. I have had more experience with weir measurements in Reno, in Ruby Valley, Independent Valley, near Tuscarora, in Mound Valley and on the South Fork of the Humboldt. I have never conducted any experiments to determine the amount of water that the grasses grown on these lands require for the best growth. I think I know the amount of moisture that is required in the ground for the most favorable production of the crops or grasses grown on defendant's lands. I have not conducted experiments for that purpose. I have seen experiments conducted in other places but not in this valley, on this kind of crop and to determine the amount of moisture that is present in or upon the soil for the production of that kind of crop. I did not compare the result for the varying quantities of water put on the soil. My experience was on one of the ranches of the company called the H. D. Ranch, in Thousand Springs Valley, in 1886 and I think in 1895.

I had charge of irrigation. The water was turned out in identically the same way as on these lands. That is not the extent of my experience in actual irrigation. I commenced irrigation on my father's ranch when I was 12 years old. On lands of this kind that was the practical extent of it. I have observed the same irrigation throughout Nevada as used in that way.

THE COURT: Objection sustained. I will say to you, gentlemen, that there was a time some years ago that we tried to adjudicate controversies of this kind with evidence perhaps no better than would be given by this witness on this point, because that was the best evidence we could get at that time, but that is no longer necessary. Irrigation has advanced to such a point, and we have had so much experience with it, that it is entirely practical to have scientific, practical evidence on a matter of this kind. The mere fact that a large amount of water has been used upon land is no evidence that a large amount is necessary.

RE-DIRECT EXAMINATION (Continuing):

Q. Do you know of any reason, Mr. McClellan, why, if it be a fact that it is necessary to keep water flowing over the surface of the ground for the production of such crops as you have spoken of along the Salmon River?

A. Yes sir.

Q. Why is that?

MR. HAGA: If the Court please. That is

objected to. No proper foundation has been laid.

THE COURT: Objection sustained. The witness has not testified that it was necessary, Mr. Nebeker. You asked him why it was necessary.

MR. NEBEKER: I asked him first if he knew any reason why, and I asked him what that reason was.

THE COURT: Yes, but that is getting at it indirectly, to the question whether or not it is necessary. If you were to ask him the question whether or not it is necessary I should have to sustain the objection on the ground that he is incompetent to answer that question.

XVII.

The court erred in limiting the purposes for which defendant's exhibits numbered 2, 3, 8 and 9 were receivable in evidence, and in ruling that said exhibits were admissable for the sole purpose of showing an affirmative act in the way of instituting water rights at the dates of said exhibits, respectively, in the same way as any other act, as the making of a survey, might be taken as evidence of an intention to appropriate water at that time.

Defendant's exhibit No. 2 contains the following:

(a) The original notice of location of the Harrell Ditch (or High Line Canal). It is executed and acknowledged by John Sparks, president of the Sparks-Harrell Company, on the 28th day of November, 1892, and was filed for

record in the office of the County Recorder of Elko County, Nevada, on the——day of November, 1892. It states the point of diversion, the length, width and depth of the proposed canal, and a general description of the lands (aggregating about 4,000 acres) to be irrigated. It claims 5,000 miners' inches of water from Salmon River. A plat is attached to the notice showing more particularly the location of the ditch, as well as of the lands to be irrigated.

(b) Water and ditch location notice of the "Upper Vineyard Ditch." The point of diversion, general course, and length of the ditch, together with the lands to be irrigated thereby (including lands that were irrigated from said ditch at the time of the trial) are specifically stated in the notice. Claim is made for 500 cubic feet per second of the waters of Salmon River for irrigation, domestic and other useful purposes. A map is attached to the notice showing the particular location of the ditch and lands to be irrigated therefrom. It was executed by John Sparks, president, and Andrew J. Harrell, secretary, of the Sparks-Harrell Company, and acknowledged on the 25th day of May, 1899, and filed for record in the office of the County Recorder of Elko County, Nevada, on the 26th day of May, 1899;

(c) Water and ditch location notice relating to the Harrell Ditch (or High Line canal). It was executed by John Sparks, president, and

Andrew J. Harrell, secretary, of The Sparks-Harrell Company, and acknowledged on the 9th day of June, 1899; it was filed for record in the office of the County Recorder of Elko County, Nevada, on the 12th day of June, 1899. It gives a particular description of the point of diversion, location, length and other dimensions of the proposed canal, as well as a description of that part of the canal already constructed; it states that it is made to describe all changes from the survey of November 5, 1892, and to give a more definite description of the lands covered and to be irrigated therefrom. The lands to be irrigated are specifically described (being the same lands as those under the canal as now constructed) and is accompanied by a map showing the location of the ditch and the lands to be irrigated therefrom. The line of the proposed canal is the same upon which the canal was afterwards constructed.

Defendant's Exhibit No. 3 is a water and ditch location notice executed by John Sparks, president, and Andrew J. Harrell, secretary, of The Sparks-Harrell Company, and acknowledged on the 30th day of October, 1893, and filed for record on the 14th day of December, 1893. It claims all of the waters of what is known as Hot Creek and Fall Creek, in township forty-seven north, range sixty-seven east, M. D. M., in Elko County, Nevada; it gives the points of diversion, locations and termini of two

ditches, which were thereafter constructed, and a particular description of the lands to be irrigated. The notice is accompanied by a map showing the location of the ditches and the lands to be irrigated therefrom.

Defendant's Exhibit No. 8 is a water and ditch location notice, executed by John Sparks, president, and Andrew J. Harrell, secretary, of The Sparks-Harrell Company, acknowledged on the 4th day of October, 1893, and filed for record on the 14th day of December, 1893. It claims eleven cubic feet per second of the waters of North, Middle and South Forks of Trout Creek, to be used for irrigation of lands specifically described in the notice. The points of diversion, courses, and termini of two proposed ditches are given, and a map is attached to the notice showing the location of the ditches and the lands to be irrigated therefrom.

Defendant's Exhibit No. 9 is a water and ditch location notice, executed by John Sparks, president, and Andrew J. Harrell, secretary, of The Sparks-Harrell Company, acknowledged on the 1st day of November, 1893, and filed for record on the 14th day of December, 1893. It claims twenty cubic feet per second of the waters of Shoshone Creek, flowing through township forty-seven north, ranges sixty-four and sixty-five east, M. D. M., in Elko County, Nevada; said water to be used for the irrigation of certain lands specifically described in the no-

tice. Two proposed ditches for the diversion and use of said water are specifically described, and a more particular description of the same appears on the map attached to the notice.

All the foregoing exhibits were duly recorded in the proper records of the County Recorder of Elko County, State of Nevada, and appear in the printed transcript of defendant's exhibits, to which reference is hereby made.

WHEREFORE the appellant prays that said decree be reversed and that such decree be entered as is meet and equitable.

ANDREW HOWAT,
JOHN A. MARSHALL,
H. R. MACMILLAN,
FRANK K. NEBEKER,

Residence: Salt Lake City, Utah.

EDWIN SNOW,

Residence: Boise City, Idaho.

C. B. HENDERSON,

Residence: Elko, Nevada.

C. A. BOYD,

Residence: Ogden, Utah.

Solicitors for Defendant and Appellant.

Endorsed: Filed Sept. 20, 1916. W. D. McReynolds, Clerk.

(Title of Court and Cause.)

STIPULATION.

IT IS STIPULATED that all of plaintiffs' exhibits, except those numbered one (1) to six (6), and

thirty-one (31), may be omitted from the printed transcript of the record on appeal, and that the originals of all other exhibits introduced by plaintiffs, as well as defendant's exhibits numbered one (1) to sixteen (16) inclusive, and a copy of the Herrington report, may be by the Clerk of this Court transmitted separately from the printed transcript to the United States Circuit Court of Appeals for the Ninth Judicial Circuit, and that said exhibits so transmitted separately from the printed transcript may be considered by said Circuit Court of Appeals the same in all respects as if said exhibits were incorporated in said printed transcript.

It is further stipulated that if said Circuit Court of Appeals shall of its own motion determine that any part of the record not included in the printed transcript should have been so included for the information or convenience of the Court, or if either party shall hereafter desire any additional part of the record certified to said Court, or printed as part of the record, the same may be certified up to said Circuit Court of Appeals, and, if required, printed as a supplement to the record at the expense, in the first instance, of the appellant.

Dated this 20th day of Sept., 1916.

S. H. HAYS,

P. B. CARTER,

J. H. RICHARDS,

O. O. HAGA,

Solicitors for Plaintiffs.

ANDREW HOWAT,
J. A. MARSHALL,
HERBERT R. MACMILLAN,
FRANK K. NEBEKER,
EDWIN SNOW,
C. B. HENDERSON,
C. A. BOYD,

Solicitors for Defendants.

Endorsed: Filed Sept. 20, 1916.

W. D. McReynolds, Clerk.

By Pearl E. Zanger, Deputy.

(Title of Court and Cause.)

PRAECIPE.

The Clerk of the above entitled Court is hereby directed to transcribe for the record on appeal herein by defendant Vineyard Land and Stock Company, the following pleadings, exhibits and documents:

Bill of complaint, amendment to bill of complaint, amended answer and counterclaim, answer to amended answer and counterclaim, proposed amendment to amended answer, statement of evidence of all witnesses, including a statement of the substance of plaintiffs' exhibits numbered 1, 2, 3, 4, 5, 6 and 31; defendant's exhibits numbered 2, 3, 8 and 9; the decision of the trial court, the decree made and entered in said cause, the petition for appeal and the order allowing the same, the assignment of errors, the stipulation between counsel for the respective parties as to the transmission of original exhibits, the prae-cipe to the clerk of said court, the order of the trial

court for the transmission of original exhibits, the bond on appeal, citation, the clerk's return to record, and clerk's certificate.

Said clerk is directed in preparing the printed transcript on appeal herein to exclude the formal and immaterial parts of all of said pleadings, exhibits and documents.

Said clerk is also requested to attach his certificate to each original exhibit transmitted to the appellate court.

Dated this 20th day of September, 1916.

ANDREW HOWAT,

J. A. MARSHALL,

H. R. MACMILLAN,

FRANK K. NEBEKER,

Residence: Salt Lake City, Utah.

C. B. HENDERSON,

Residence: Elko, Nevada.

EDWIN SNOW,

Residence: Boise City, Idaho.

C. A. BOYD,

Residence: Ogden, Utah.

Solicitors for Defendant.

Due service of the foregoing is hereby admitted, this 20th day of September, 1916.

S. H. HAYS,

P. B. CARTER,

J. H. RICHARDS,

O. O. HAGA,

Solicitors for Plaintiffs.

Endorsed: Filed Sept. 20, 1916.

W. D. McReynolds, Clerk.

(Title of Court and Cause.)

ORDER FOR TRANSMISSION OF ORIGINAL
EXHIBITS.

It appearing to me to be necessary and proper that the original papers hereinafter mentioned should be inspected in the United States Circuit Court of Appeals for the Ninth Judicial Circuit, upon appeal herein:

It is hereby ordered that plaintiffs' original exhibits numbered seven (7) to thirty-three (33), inclusive, and the copy of the Herrington Report, referred to in the testimony herein, and defendant's original exhibits numbered one (1), four (4), five (5), six (6), seven (7), ten (10), eleven (11), twelve (12), thirteen (13), fourteen (14), fifteen (15) and sixteen (16), shall be certified by the Clerk of this Court and transmitted to the Clerk of the United States Circuit Court of Appeals for the Ninth Judicial Circuit, separately from the printed transcript herein, at the time that said printed transcript is transmitted.

Dated this 20th day of September, A. D. 1916.

FRANK S. DIETRICH,
United States District Judge for
the District of Idaho.

Endorsed: Filed Sept. 20, 1916.

W. D. McReynolds, Clerk.

By Pearl E. Zanger, Deputy.

(Title of Court and Cause.)

BOND ON APPEAL.

KNOW ALL MEN BY THESE PRESENTS: That we, Vineyard Land and Stock Company, a corporation of Utah, as principal, and American Surety Company of New York, a corporation of the State of New York, as surety, are held and firmly bound unto Twin Falls Salmon River Land and Water Company, a corporation, and Salmon River Canal Company, Limited, a corporation, in the sum of Three Hundred and no-100 Dollars (\$300.00), to be paid to them and to their respective successors and assigns;

To which payment well and truly to be made we bind ourselves, and each of us, jointly and severally, and each of our successors and assigns, by these presents.

Sealed with our seals and dated this 18th day of September, A. D. 1916.

WHEREAS, the above named Vineyard Land and Stock Company is about to prosecute an appeal to the United States Circuit Court of Appeals for the Ninth Judicial Circuit, to reverse the judgment of the United States District Court for the District of Idaho, Southern Division, in the above entitled cause;

NOW, THEREFORE, the condition of this obligation is such that if the above named Vineyard Land and Stock Company shall prosecute its said appeal to effect and answer all costs if it fails to make

good its plea, then this obligation shall be void; otherwise to remain in full force and effect.

VINEYARD LAND AND STOCK COMPANY,
By FRANK K. NEBEKER,

Attest: Its Attorney.

W. H. WATTIS, Secretary.

AMERICAN SURETY COMPANY
OF NEW YORK,

By W. E. McKELL,

Attest: Resident Vice President.

V. H. GALLOWAY,

Resident Assistant Secretary.

Countersigned: SHEPPARD & FALK,

By BRADLEY SHEPPARD, Agent,

Boise, Idaho.

(Statutory affidavit for corporate surety for Idaho.)

Approved: Dietrich, Judge. Sept. 20, 1916.

Filed Sept. 20, 1916. W. D. McReynolds, Clerk.

STATUTORY AFFIDAVIT FOR CORPORATE SURETY—IDAHO.

State of Utah,

County of Salt Lake,—ss.

On the 18th day of September, 1916, personally appeared before me, a Notary Public in and for the County and State aforesaid, W. E. McKell, to me known to be a Resident Vice President of the AMERICAN SURETY COMPANY OF NEW YORK, who, being by me duly sworn, did depose and say: That he

resided in the City of Salt Lake City, State of Utah; that he is Resident Vice President of the AMERICAN SURETY COMPANY OF NEW YORK, the corporation described in and which executed the above instrument; that he knew the corporate seal of said corporation; that the seal affixed to said instrument was such corporate seal; that it was so affixed by order of the Board of Trustees of said corporation; and that he signed his name thereto by like order; that said corporation has complied with Chapter Eleven of the Idaho Revised Codes and all other laws of the State of Idaho relating to surety companies and has also complied with the Act of Congress approved August Thirteenth, A. D. 1894, entitled: "An Act relative to recognizances, stipulations, bonds and undertakings, and to allow certain corporations to be accepted as surety thereon," as amended March 23, 1910; and that the liabilities of said corporation do not exceed its asseets as ascertained in the manner provided by law. And the said W. E. McKell further said that he was acquainted with V. H. Galloway and knew him to be one of the Resident Assistant Secretaries of said corporation; that the signature of said V. H. Galloway subscribed to the said instrument is in the genuine handwriting of the said V. H. Galloway and was thereto subscribed by the like order of the said Board of Trustees, and in the presence of him, the said W. E. McKell, Resident Vice President. Affiant further says that the Insurance Commissioner of the State of Idaho, whose address is Boise, Idaho, has been ap-

pointed Attorney upon whom process for the State of Idaho may be served according to law.

W. E. McKELL.

Subscribed and sworn to before me this 18th day of September, 1916. CORA BEATTY,
(Seal) Notary Public.

In the District Court of the United States, for the District of Idaho, Southern Division.

TWIN FALLS SALMON RIVER LAND AND WATER COMPANY, a corporation, and SALMON RIVER CANAL COMPANY, LIMITED, a corporation, Plaintiffs,

vs.

VINEYARD LAND AND STOCK COMPANY, a corporation, Defendant.

CITATION ON APPEAL.

In Equity—No. 405.

The United States of America, to Twin Falls Salmon River Land and Water Company, a corporation, and Salmon River Canal Company, Limited, a corporation, Greeting:

YOU ARE HEREBY NOTIFIED that in a certain case in equity in the United States District Court of the District of Idaho, Southern Division, wherein Twin Falls Salmon River Land and Water Company, a corporation, and Salmon River Canal Company, Limited, a corporation, are plaintiffs, and Vineyard Land and Stock Company, a corporation, is defendant, an appeal has been allowed the defendant therein to the United States Circuit Court of Appeals for

the Ninth Judicial Circuit. You are hereby cited and admonished to be and appear in said United States Circuit Court of Appeals for the Ninth Judicial Circuit, at San Francisco, California, thirty (30) days after the date of this Citation, to show cause, if any there be, why the Order and Decree appealed from should not be corrected and speedy justice done the parties in that behalf.

WITNESS, The Honorable Frank S. Dietrich, Judge of the District Court of the United States, for the District of Idaho, Southern Division, this 20th day of September, A. D. 1916.

FRANK S. DIETRICH,
United States District Judge for
the District of Idaho.

Service admitted this 20th day of September, 1916.

S. H. HAYS,
P. B. CARTER,
J. H. RICHARDS,
O. O. HAGA,
Solicitors for Plaintiff.

(Original)

*In the District Court of the United States for the
District of Idaho, Southern Division.*

TWIN FALLS SALMON RIVER LAND AND WATER CO., a corporation, and SALMON RIVER CANAL CO., Ltd., a corporation,

Plaintiffs,

VS.

VINEYARD LAND AND STOCK CO., a corporation,
Defendant.

CITATION ON APPEAL.

In Equity—No. 405.

Filed September 20, 1916.

W. D. McREYNOLDS,
Clerk.

RETURN TO RECORD.

And thereupon it is ordered by the Court that the foregoing transcript of the record and proceedings in the cause aforesaid, together with all things thereunto relating, be transmitted to the United States Circuit Court of Appeals for the Ninth Judicial Circuit, and the same is transmitted accordingly.

W. D. McREYNOLDS,
Clerk.

By PEARL E. ZANGER,
Deputy Clerk.

(Title of Court and Cause.)

CLERK'S CERTIFICATE.

I, W. D. McREYNOLDS, Clerk of the United States District Court for the District of Idaho, Southern Division, do hereby certify that the above and foregoing transcript of pages from one (1) to three hundred and seventy-six (376), inclusive, contain true and correct copies of the bill of complaint, amendment to bill of complaint, amended answer and counterclaim, answer to amended answer and counter-claim, proposed amendment to amended

answer, statement of evidence of all witnesses, including a statement of the substance of plaintiffs' exhibits numbered 1, 2, 3, 4, 5, 6 and 31; defendant's exhibits numbered 2, 3, 8 and 9; the decision of the trial court, the decree made and entered in said cause, the petition for appeal and the order allowing the same, the assignment of errors, the stipulation between counsel for the respective parties as to the transmission of original exhibits, the precipe to the Clerk of said Court, the order of the trial court for the transmission of original exhibits, the bond on appeal, the Clerk's return to record and Clerk's certificate, in the above entitled cause, which together constitute the transcript of record herein upon appeal to the United States Circuit Court of Appeals for the Ninth Judicial Circuit. I further certify that I have annexed to said transcript of the record the original Citation issued in said cause. I further certify that the costs of the record herein amount to the sum of Four Hundred and Thirty-seven Dollars (\$437.00), and that the same have been paid by appellant.

WITNESS MY HAND and the seal of said Court affixed, at Boise, Idaho, this 13th day of November, 1916.

W. D. McREYNOLDS,

Clerk.

By PEARL E. ZANGER,

Deputy Clerk.